UNIVERSITY
OF MICHIGAN
MAY 29 1951
MEDICAL
LIBRARY

The ILLINOIS Medical Journal

VOL. 99 NO. 5

May, 1951

Obesity—
Diagnosis and Treatment

✦

Clinical Correlation of the Electrocardiogram

✦

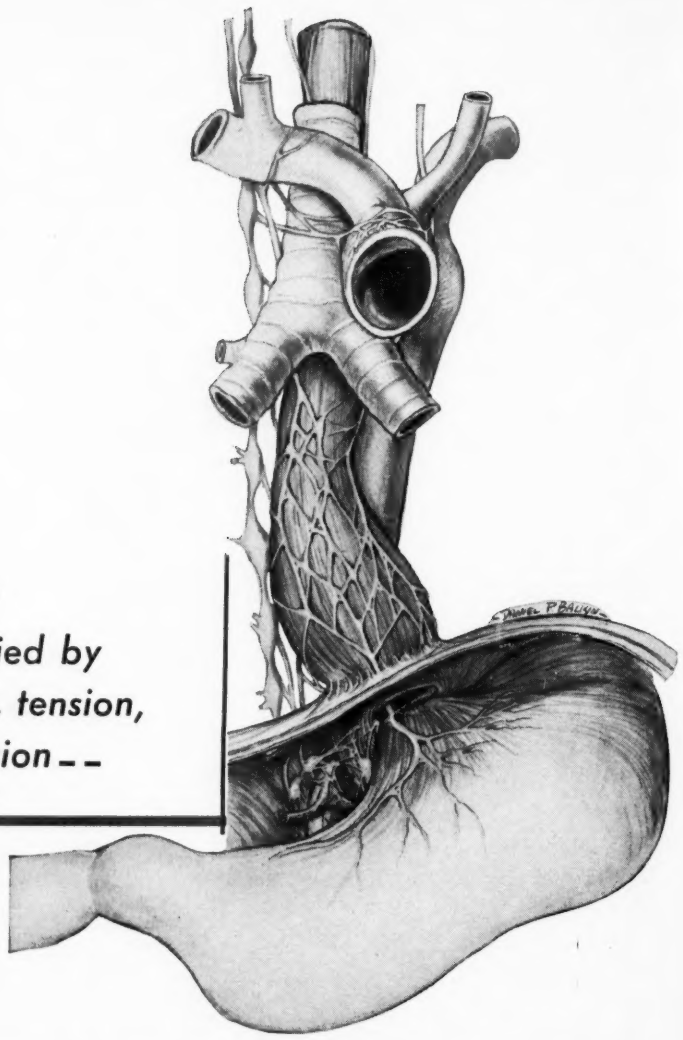
Birth Marks

(See page 5 for Table of Contents)

OFFICIAL JOURNAL OF THE ILLINOIS STATE MEDICAL SOCIETY

SPASTIC STATES--

accompanied by irritability, tension, apprehension--



respond to the antispasmodic action of Pavatrine, combined with the mild central nervous system sedation of Phenobarbital—as exhibited in Pavatrine with Phenobarbital.

Pavatrine is unique in that it exerts two types of spasmolysis—neurotropic and musculotropic—for relief of gastric hypermotility, cardiospasm, pylorospasm, spasticity of the duodenum including the sphincter of Oddi, bladder spasm and dysmenorrhea.

For the medical management of gallbladder disease, Pavatrine with Phenobarbital is useful in conjunction with the hydrocholeretic, Ketochol.

PAVATRINE® with PHENOBARBITAL

(β-diethylaminoethyl fluorene-9-carboxylate hydrochloride)

RESEARCH IN THE SERVICE OF MEDICINE **SEARLE**

Entered as Second-Class Matter July 21, 1919, at the Post Office, Oak Park, Illinois, under the Act of March 8, 1879. Acceptance for mailing at special rate of postage provided for in section 1102, Act of October 8, 1917, authorized July 15, 1918. Office of Publications, 715 Lake Street, Oak Park, Ill.

TABLE OF CONTENTS

A indicates advertising section

MAY, 1951
Vol. 99, No. 5

ORIGINAL ARTICLES

Obesity—Diagnosis and Treatment. *James H. Hutton, M.D.*, Chicago 237
Clinical Correlation of the Electrocardiogram. *George A. Hellmuth, M.D., F.A.C.P.* and *Allen H. Weiss, M.D.*, Chicago 243
Birth Marks. *Harry M. Hedge, B.A., M.S., M.D., F.A.C.P.*, Chicago 257
Polyps of the Large Bowel and Their Management. *Raymond W. McNealy, M.D.* and *Francis D. Wolfe, M.D.*, Chicago 260
ACTH and the Kidney. *Edith B. Farnsworth, M.D.*, Chicago 263
Pernicious Anemia Associated with Lymphosarcoma. Case Report. *Steven O. Schwartz, M.D.* and *Fern L. Stevenson, M.D.*, Chicago 265
Torsion of the Gall Bladder. Case Report. *William J. Vymalek, M.D., F.A.C.S.* and *Frank P. Paloucek, M. D.*, Berwyn 268

EDITORIALS

The Number One Citizen of Rochelle 229
The V.A. Home-Town Medical Program 229
United We Stand — Together We Fall 230
Emergency Medical Calls 230
Sympathectomy for Peripheral Sclerosis 231
An Unusual Interprofessional Dinner Conference . 232
Book Reviews 80A

MEDICAL ECONOMICS

Revised Mental Health Act 233

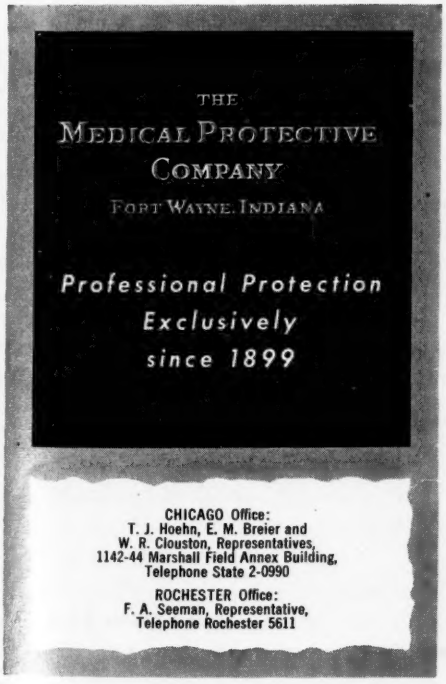
CORRESPONDENCE

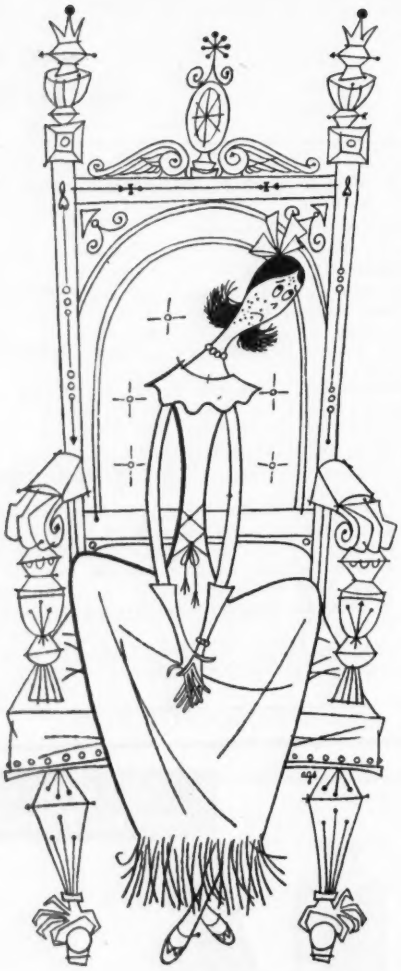
How "Automatic Extension" of Series "E" U.S. Bonds Affects You 234
Conference on Aging 234
"Your Mental Hospitals" — Chicago Community Clinic 235
Northwestern's Centennial Brings Conference on Aging 235
Physicians Art Show at Atlantic City 236

PATHOLOGY CONFERENCES

Presentation of Three Cases. *Herman Joseph, M.D.*, Chicago.
Carcinoma of the Mammary Gland; Death from Metastases 22 Years After Radical Mastectomy 270
Benign Solitary Adenoma of the Liver in a Male Aged 88 Years 273
Primary Carcinoma of the Liver in an 85 Year Woman 274

PHYSICAL MEDICINE ABSTRACTS 58A
NEWS OF THE STATE 276





to help

your acne patient

get back "in the swing"

Your complexion-conscious young acne patient regains her self-confidence when you write 'ACNOMEL'. Because ACNOMEL is:

1 ***Immediately effective cosmetically.*** **ACNOMEL is delicately flesh-tinted. It masks the acne lesions, yet is virtually invisible when applied.**

2 ***Rapidly effective therapeutically.*** **ACNOMEL ordinarily brings definite improvement—not in months or weeks, but in a matter of days.**

Formula: Resorcinol, 2%; and sulfur, 8%; in a stable, grease-free, flesh-tinted vehicle.

Smith, Kline & French Laboratories, Philadelphia

Acnomel

'Acnomel' T.M. Reg. U.S. Pat. Off.

a significant advance, clinical and cosmetic, in acne therapy

The
ILLINOIS Medical Journal

Official Journal of the Illinois State Medical Society

Harold M. Camp, EDITOR. **Theodore R. Van Dellen, ASSOCIATE EDITOR.**

EDITORIAL BOARD — James H. Hutton, Chairman, Frederick H. Falls, Josiah J. Moore, Edwin M. Miller, Chauncey C. Maher, Harry Culver, Walter Stevenson, Raymond W. McNealy, Arkell M. Vaughn, Edwin F. Hirsch.

Vol. 99, No. 5 **May, 1951**

THE NUMBER ONE CITIZEN OF ROCHELLE

In the March issue of *The Illinois Medical Journal* there was a story relative to the Number One Citizen of Danville, Dr. Harlan English. It was only recently called to our attention that another Illinois physician had been similarly honored by his home town last December.

Rochelle selects its Number One Citizen each year and the honor for 1950 was given to Dr. Arthur R. Bogue of that city. The annual "Man of the Year" banquet was held in the Rochelle Township High School, Tuesday evening, December 19, and the principal speaker was Hon. Everett M. Dirksen, United States Senator from Illinois. The subject of the address was "Freedom Is Not Free." Senator Dirksen praised Dr. Bogue, and commented on the many things he has done for Rochelle. An achievement award of a plaque was presented to Dr. Bogue following the address. Dr. Bogue has been in practice for thirty years and has been president of the school board for twelve years. He has been very active in the affairs of his county and the State Medical Society, Fellow of the AMA, and active in other organizations.

He has long been interested in all community affairs, among these the Chamber of Commerce, American Legion, and also prominent in the local Rotary Club. Once more we desire to commend a community for selecting a member of the medical profession as its outstanding man of the year. Likewise we again urge physicians everywhere to become interested in all community activities and do their part in making it a better place for people to live, work and establish their homes.

THE V. A. HOME-TOWN MEDICAL PROGRAM

A release was recently received from the Acting Chief Medical Director, Department of Medicine and Surgery, Veteran's Administration, relative to a few inconsistencies on the part of participating physicians. Although this directive was sent to all V. A. Regional Offices and Centers, an accompanying letter stated that there were very few abuses noted on the part of Illinois physicians.

These were primarily relative to the issuance of prescriptions for Veterans Administration beneficiaries, and the following prescribing inconsistencies were involved:

(1) Excessive quantities of medication prescribed
(2) Proportionately large number of injectable products were prescribed.
(3) Medication not indicated for the service-connected or adjunct condition.

It is called to our attention that outpatient treatment is restricted by law and regulation to

the treatment of service-connected, adjunct or contributing medical conditions. It is necessary therefore, that all drug items for V. A. patients be prescribed as judiciously as for private patients. In no instance should quantities be in excess of that required for treatment between visits to the physicians' offices to have the medication administered.

It is stated that the above noted violations of law and regulation, and the apparent disregard for sound medical ethics, jeopardize the entire out-patient medical care program through fee basis physicians, and efforts should be made to insure that the program operates on a sound legal and medical basis.

It was further stated that when prescribing inconsistencies are noted by Chief Medical Officers, the State Medical Societies or their intermediaries will be notified by letter and requested to contact the offending physician and advise him in writing that future actions of this type will result in his removal from the list of physicians eligible to treat veterans on a fee basis.

We are sure that violations have been few in number in Illinois, and it is hoped that every participating physician in this state will endeavor at all times to comply with the existing regulations, such as were given in complete detail when the plan was submitted, and approved some years ago by the State Medical Society and the Veterans Administration.

In submitting this release, our friendly Regional Medical Director desired to thank the physicians of Illinois who have been working under the plan so satisfactorily in recent years. It was deemed advisable, however, to bring this information to the attention of the Illinois participating physicians so that they would pay strict attention to the law and regulations under which the plan was established. It seems unlikely that further violations will be noted in this state.

UNITED WE STAND—DIVIDED WE FALL

Some of the animosity toward the medical profession comes from careless statements which are inadvertently made by the physician. This came to our attention recently when we heard an influential citizen tell a group of equally influential men of his gripes against the medical profession. His wife had consulted a reputable surgeon and was told that an operation was needed. Not being content with one opinion they consulted another man of equal renown but of a more temperamental nature. He was indignant and later told the influential citizen in a confidential manner that, " an operation would have killed your wife." This struck like a bombshell and so far as the layman was concerned physicians were nothing but a "bunch of murderers."

The circumstances in this case happen to be known. The patient may not have needed the operation inasmuch as it was recommended as a diagnostic procedure. On the other hand, she was not a poor risk and the procedure surely would not have killed her. It is hard to believe that the second surgeon meant what he said. In all probability he thought that the derogatory remark might raise himself a notch or two above his opponent. But the statement backfired because it lowered the husband's estimation of all physicians including the second surgeon. We also know that this man has told the story over and over again and by this time many others may share his opinion.

It has been stated repeatedly that inadvertent remarks made by another physician also is a major factor in the filing of malpractice suits. Criticizing a competitor is a sign of weakness. Every knock against a fellow physician leaves a dent in the framework of the medical profession. Let us be careful lest organized medicine be made to look so "crummy" that our patients will begin to demand a "new model."

EMERGENCY MEDICAL CALLS

One of the responsibilities of the county medical society today is providing emergency service to the residents of any community. The inability of any individual to secure a physician in emergency cases, has been the basis for one of the most serious accusations against the profession as a whole.

Night calls, emergency calls, have been thoroughly discussed in medical journals, county society bulletins, and in THE LAY PRESS. The Council on Medical Service of the American Medical Association conducted a survey during the summer of 1948 and found that only about 60 county medical societies had developed any formal plan for handling emergency and night

calls. The increasing pressure on this phase of medicine has resulted in bringing this total to 100 or 120.

The problem varies according to the population of any community. Plans adaptable in a city of 100,000 would not be necessary in a town of 5,000. However, the plan which would be successful in a city of 100,000, might not be the answer in a metropolitan area.

Illinois presents a complicated picture of metropolitan problems and rural situations to make it necessary that the plan adopted fit the community which it serves. For this reason, the solution rests upon the county medical society.

The Council on Medical Service of the American Medical Association has developed a pamphlet which outlines 16 plans representing a cross-section of the various approaches being used throughout the country by medical societies.

James R. McVay, M.D., Chairman of the Council, writes: "Every county or city has real emergency cases, and one of the weak spots in many medical care programs is the inability to put physicians in immediate contact with such cases. The first requisite to successful handling of emergencies is an understanding and cooperative medical profession. Some physician has to make the emergency night call; every physician should do his part so that the burden does not fall on the FEW. The second requisite is a well defined plan for handling such calls — a plan which is understood and accepted by the public and the physicians. It is hoped that this pamphlet will be of assistance to many societies in devising a workable plan."

Write to the Council on Medical Service
American Medical Association
535 North Dearborn Street
Chicago 10, Illinois

and request that they send you: "Planning for Emergency Medical Calls" — A Resume of the plans of 16 county medical societies.

If your society has not been active in this phase of medical care planning, now is the time for you to add this to your list of important survices to be provided for the residents of your community.

IT'S GOOD PUBLIC RELATIONS.

History repeats itself. An archeologist reported that Europe touched America millions of years ago.
—Oregon Purchasing News

SYMPATHECTOMY FOR PERIPHERAL SCLEROSIS

The painful and disabling effects of arteriosclerosis of the lower extremities are difficult to control. This is understandable because intermittent claudication, rest pain and pregangrenous lesions are signs of advanced impairment in circulation. But no one can blame the medical profession for not trying; pharmacies are filled with remedies and physical therapy units littered with gadgets and other devices to improve blood flow. During the past 15 years the surgeons have advocated lumbar sympathectomy and the time is ripe now to evaluate the results.

Sympathectomy was not considered a logical procedure in the arteriosclerotic patient because the vessels had lost their elasticity and were not capable of dilating. But there is adequate proof now that the lack of vasospasm as demonstrated by spinal anesthesia, the Landis Test or paravertebral block is not a contraindication to surgery. Whereas a good temperature response to these procedures predicts a satisfactory outcome to operation it does not follow that a negative test means failure. On the contrary, many of the good results occur in those with no evidence of vasospasm.

The operation is tolerated well even though the majority of patients are elderly. Extreme hypertension, diabetes and coronary arteriosclerosis are additional hazards. Amputation rather than sympathectomy is in order when there is definite gangrene or necrosis down to the bone proximal to the toes.

Edwards and Crane[1] reported recently on the outcome in 100 patients who underwent bilateral or unilateral lumbar sympathectomy. The age varied from 30 to 80 and 79 were male and 21 female patients. Diabetes was present in 27 patients. Seventy per cent had threatened or actual necrosis and the remainder complained of intermittent claudication. One was made worse by the operation and there were two hospital deaths. Ninety-two left the hospital improved. A survey 20 months later revealed that 89 patients were alive and the sympathectomized foot was almost invariably better than its unoperated fellow.

Stuart N. Rowe[2] of Pittsburgh summarized recently the pertinent literature on the results of autonomic surgery in peripheral vascular

disease in general. In arteriosclerosis the following tabulation was reported:

	Improved	*Unimproved*
Coller	69%	31%
De Takats	92%	8%
Average	81%	19%

These results compare favorably with those in Raynaud's disease for which the operation is made theoretically to order. The following are reported for this condition:

	Good	*Improved*	*Unimproved*
White and Smithwick	74%	20%	6%
Gask and Ross	53%	27%	19%
Rowe	60%	20%	20%
Average	62%	23%	15%

Sympathectomy is also recommended in Buerger's disease and the following results have been obtained:

	Able to Work	*Comfortable*	*Unimproved*
Telford and Stopford	40%	25%	35%
White and Smithwick	42%	53%	5%
Rowe	34%	50%	16%
Average	38%	43%	19%

1. Edwards, Edward A. and Crane, Chilton: Lumbar Sympathectomy for Arteriosclerosis of the Lower Extremities, The New England Journal of Medicine **244**: 199, 1951.
2. Rowe, Stuart N.: Autonomic Surgery in Peripheral Vascular Disease, The Pennsylvania Medical Journal, **54**: 127, 1951.

AN UNUSUAL INTERPROFESSIONAL DINNER CONFERENCE

On Thursday evening, March 29, the Morgan County Medical Society had a meeting of unusual interest, with a large attendance. Members of the medical, dental, pharmaceutical and legal professions were present at this dinner meeting held at the Dunlap Hotel, Jacksonville.

The principal speaker was Mr. George E. Hall from the American Medical Association, Bureau of Legal Medicine and Legislation, who discussed many of the problems in Forensic and Legal Medicine. Mr. Hall told of the legal problems involved in artificial insemination, and referred to some court decisions pertaining to the subject.

Eugenic sterilization was likewise discussed, this being legal in some states especially in regard to the feeble-minded. Sterilization as a matter of convenience was likewise given much consideration in the discourse. The legal aspects of blood tests to determine paternity was another of the subjects presented, as was also the chemical tests for alcoholism. Thirteen states now admit this evidence in court, although it has not as yet been approved in Illinois.

Some interesting problems in connection with the work of coroners were given much consideration. With approximately 3050 counties in the United States, there are only about 50 which have full time coroners. Some of these are members of the medical profession, but many counties, including some of the metropolitan areas, do not have a physician as coroner. There are many interesting problems of an inquestual, as well as judicial nature involved in the work of coroners.

Although in some states a medical examiner system is used, there are no stated qualifications for the office of coroner in Illinois. The legal aspects of autopsies were likewise considered in much detail. The necessity of getting someone capable of making all examinations and tests to aid in determining the cause of death, and in many instances, who actually caused the death, is most desirable.

Methods of improving the coroner system in Illinois were mentioned in the discussion by Mr. Hall. Following this fine address, a question and answer period followed, and many interesting questions were asked, and efforts made by the speaker to give the proper answers.

This type of meeting is worthy of consideration on the part of county societies everywhere, and it was quite obvious that members of the several professions which were present have many mutual problems in their respective fields of endeavor. In the absence of the president of the Morgan County Medical Society, C. Ellsworth Black presided, and George Drennan, as program chairman, introduced the speaker of the evening.

Three officers of the Illinois State Medical Society were among the many guests at the dinner meeting, all of whom were introduced by the chairman. The Morgan County Society should be complimented for arranging this type of meeting to get members of the several professions together, and we sincerely hope that it will be done in many parts of the state during the present year.

MEDICAL ECONOMICS

The Medical Economics Committee. Chauncey C. Maher, Chairman, John R. Wolff, Co-Chairman, Edwin F. Hirsch, Carroll Birch, Hubert L. Allen, Frederick W. Slobe, Edward W. Cannady, Ford K. Hick, W. Robert Maloney, Roland R. Cross, Alfred P. Bay, Frederic T. Jung.

Revised Mental Health Act

Many physicians throughout the state are not familiar with the changes made by the Revised Mental Health Act that has been in effect since October 1, 1945. This law made specific changes with regard to the requirements for admission of mentally ill patients to institutions.

The Act provides that no person shall be deprived of his liberty on the ground that he is, or is supposed to be, mentally ill or in need of mental treatment, except in accordance with the provisions of this Act.

The Act sets forth three procedures by which a patient in need of mental treatment can be admitted to and confined in a hospital. These are: (1) by voluntary application; (2) by court commitment; and (3) by emergency admission.

There has been little or no involvement of physicians in regard to the first two methods of admission — by voluntary application or by court commitment. Pending malpractice claims, however, indicate that the involvement comes in connection with emergency admissions.

The Mental Health Act specifically defines the duties of the examining doctor and the law requires that the doctor must:

(1) *Personally* make a *complete* mental and physical examination of the patient.

(2) Determine that the patient's mental condition requires an emergency confinement necessary to prevent *physical violence* to himself or others.

(3) Make examination *on the same day* he signs the certificate, which must be in duplicate.

(4) Not be an employee or financially interested, directly or indirectly, in any privately owned institution in which detention is sought.

The Department of Public Welfare has provided formal certificates for the convenience of the profession and it is *advisable* that they be used. Some physicians are still routinely using prescription blanks, and so forth, to certify to the mental condition of a patient and are obviously unaware of the requirements of the law.

The certificate of the examining physician is not sufficient for emergency admission and the law specifically requires that a formal petition for commitment be filed with the Clerk of the local County Court and that the verified petition, plus the physician's certificate, be presented before any person can be admitted, or detained, in a hospital for the mentally ill. The law further requires that the petition and physician's

(*Continued on page* 256)

CORRESPONDENCE

HOW "AUTOMATIC EXTENSION" OF SERIES "E" U.S. BONDS AFFECTS YOU

Do you own some "E" U.S. Bonds. Did you invest in them about 10 years ago? (The First "E" Bonds were offered by the U.S. Treasury May 1, 1941.) If so, such Bonds are approaching their maturity. So, you'll be particularly interested in new legislation passed by the U.S. Congress and signed by the President involving these Bonds.

Arnold J. Rauen, State Director, U.S. Treasury Defense Bond Division for Illinois has outlined a brief explanation of how this new "automatic extension" affects you and your "E" Bonds. This is it:

(1) When your "E" Bonds reach their maturity, or 10th year, YOU CAN CASH THEM IN if you need the money. *Please remember that!*

(2) You'll want to continue your investment in these Bonds. (This is recommended by many authorities). Then, you need do nothing about the Bonds. Just keep them as you always have, in a safe place. And, the new legislation provides you can hold the Bonds for another 10 years. And interest will add up at the rate of 2½% each year you hold them for the first 7½ years. Then, the interest rate increases for the rest of the 10 years until it reaches about 2.9%. Also, *please remember*: you can cash in these "extended" Bonds any time you care to, just as you can now. And you'll receive the accrued interest. You don't have to pay income tax on the interest you get on this until you cash your Bonds.

(3) Maybe you'd like to get a check from the U.S. Government twice yearly. Well, the new legislation allows you to turn in your "E" Bonds when they reach maturity (10 years) for "G" Bonds of $500 and higher denominations. These "G" Bonds pay 2½% interest annually until their maturity in *12* years (the "E" Bonds mature in *10* years, remember) and you get your check for that twice yearly.

And, you can cash your "G" Bonds in, if you need to, any time after 6 months from the date you invest in them. And, they'll be redeemed at full face value, too.

Those are the new provisions, briefly. You can get full details from your local Bank or write Mr. Rauen, 105 W. Adams St., Chicago 3.

CONFERENCE ON AGING

The University of Michigan announces its Fourth Annual Conference on Aging to be held in Ann Arbor, July 11-13. Rehabilitation of the older handicapped person will be the topic of this year's conference, with special emphasis upon the theme that "All Are Needed." American and foreign authorities will be available to discuss the questions raised by the working conference. Attention will be directed to medical, psycho-social, economic and vocational aspects

of retaining the over-40 workers in the labor force and the role of these workers with reference to mobilization. Exhibits on the preventive and restorative phases of rehabilitation are planned. The conference is under the co-sponsorship of the Institute for Human Adjustment, School of Medicine, School of Public Health and Extension Service of the University of Michigan, the Office of Vocational Rehabilitation of the Federal Security Agency, and the Michigan Department of Vocational Rehabilitation.

Room reservations should be made by writing directly to the Michigan Union, Ann Arbor. For further information regarding the conference write to Dr. Wilma Donahue, Institute for Human Adjustment, Room 1510, Rackham Building, Ann Arbor, Michigan.

"YOUR MENTAL HOSPITALS" CHICAGO COMMUNITY CLINIC

The program of the Chicago Community Clinic illustrates the value of out-patient services. This clinic, located at 2436 West Warren Boulevard, Chicago, Illinois, is a psychiatric out-patient facility maintained by the Illinois Department of Public Welfare for patients conditionally discharged from the four northern State hospitals; that is, Chicago, Elgin, Kankakee, and Manteno State Hospitals. Most patients are kept on conditional discharge for a varying period up to two years, and during this time pay periodic visits to the Clinic. Here the services of the doctors, social workers, and psychologists are available in order to further their rehabilitation.

During the past statistical year, an average of 500 patients per month were seen at the Clinic, and 12,712 therapeutic interviews were given. In addition to the above program, so-called "community patients" receive treatment. This group consists of people who have never been in State hospitals, but are in need of mental care and are psychiatrically indigent. These patients are referred from the various recognized social agencies, physicians, relatives and other interested individuals.

The criteria for acceptance of "community patients" were: 1. that the patient was able and willing to come, 2. that he could benefit from what the clinic had to offer, 3. that the problem could best be met by psychiatric help, 4. that he was psychiatrically indigent, and 5. that he was referred by a physician, a recognized agency or court. If the problem could be met by the services of other agencies, and did not necessarily require psychiatric care, the individual was referred to the agency best suited to fulfill the individual's needs.

During the past year, a large number of such patients with varying degrees of emotional disturbances or mental illness were seen at the Clinic. Those with emotional illness received help to prevent serious disabling developments or psychotic episodes. The mentally ill were helped on an out-patient basis, thus avoiding the necessity of entering a mental hospital.

Thus we see that the above two combined programs have been of great assistance in attempting to alleviate the overcrowding in our State hospitals, keeping patients out of State institutions, as well as a weapon in the prevention of mental illness.

G. A. Wiltrakis, M.D.
Deputy Director

NORTHWESTERN'S CENTENNIAL BRINGS CONFERENCE ON AGING

Northwestern University Medical School will present a conference on the Problems of the Aging Population as their part in the University Centennial Celebration. The meeting is open to all and will be held at Thorne Hall, June 7-8.

PROBLEMS OF AN AGING POPULATION
Co-Chairmen:
Charles W. Freeman, Dean, Dental School
Richard H. Young, Dean, Medical School

Thursday, June 7th

MORNING
9:30 Aging in the United States
Kimball Young, Chairman, Northwestern

Topics and Speakers:
Demography — Philip Hauser, Chicago
Attitudes — Clyde Hart, Director, National Opinion Research Center
Ecology — Rupert Vance, North Carolina

LUNCHEON
12.30 Educational Problems of an Aging Population
Paul Essert, Director, Institute of Adult Education, Columbia

AFTERNOON

2:00 Research Problems

(Session limited attendance) Send ticket requests to Medical School.

Social — Economic Aspects — Philip Hauser, Rupert Vance, Edwin Witte

Social — Psychological Aspects — R. F. Winch, Clyde Hart, Fred Hoehler

Family Aspects — Miss Bonde, Miss Elliott, Miss Kirk

Social Attitudes — Anthropology Department

Educational Features — Paul Essert, School of Education

EVENING

8:00 Social Implications of an Aging Population

Payson Wild, Chairman, Northwestern. Speakers: Philip Hauser, Walter Reuther, Fred Hoehler.

Friday, June 8th

MORNING

9:30 Aspects of Aging

Dr. Richard Young, Presiding Officer, Dean, Medical School

Topics and Speakers:

Biological Phenomena of Aging — A. J. Carlson, Chicago

Nutritional Aspects of an Aging Population — Tom Spies, Northwestern

Medical Aspects of an Aging Population — Leonard Scheele, Surgeon General, U. S. Public Health Service

Psychiatric Aspects of an Aging Population — C. H. Hardin Branch, Professor of Psychiatry, University of Utah

Dental Aspects of an Aging Population — George Teuscher, Northwestern

AFTERNOON

2:00 Our Aging Labor Force

Carroll Daugherty, Chairman, Northwestern

Topics and Speakers:

Management's Attitude and Responsibility — Clarence Randall, President, Inland Steel Company

Organized Labor's Attitude and Responsibility — Walter Reuther

Government's Attitude and Responsibility — Edwin Witte, University of Wisconsin

EVENING

8:00 Anticipating Aging with Assurance

Joseph Hinsey, Moderator, Dean, Cornell University Medical School

Speakers:

Dr. Leonard Scheele — Surgeon General of the U.S. Public Health Service

Dr. C. H. Hardin Branch — Professor of Psychiatry, University of Utah

Mr. Reinhard A. Hohaus — Actuary — Metropolitan Life Insurance Company

On Saturday night, June 9th, the Medical School will hold its annual alumni faculty dinner at the Furniture Club of America, 666 Lake Shore Drive, Chicago. The price of the dinner is $6.50 per plate.

Representatives of the five-year Medical classes of 1906, 11, 16, 21, 26, 31, 36, 41, and 46 are urged to plan reunions and reserve special class tables at the dinner. Members of the 55-year class of 1896, the 50-year class of 1901, and the graduating class of 1951 will be guests of the Medical Alumni Association. Reservations and additional information may be secured from the Medical Alumni Office, Room 796, Ward Building, 303 East Chicago Avenue, Chicago 11, Illinois.

During the A.M.A. convention, a Northwestern alumni luncheon will be held on Tuesday, June 12, at 12:30 in the Hotel Claridge, Atlantic City. Dr. Arthur H. Colwell, Chairman of the Department of Medicine at Northwestern University, will speak on "Current Developments at the Alma Mater".

PHYSICIANS' ART SHOW AT ATLANTIC CITY

The American Physicians Art Association will have an art exhibit, as usual, during the A.M.A. convention at Atlantic City, N. J. June 11 to 15, 1951, inclusive. Any physician in the United States, Canada and Hawaii desiring to participate in this show should communicate with the secretary for particulars.

J. Henry Helser & Co., Inc., Investment Managers with offices on the Pacific Coast, are the new sponsors of the American Physicians Art Association and will award 200 trophies besides a special Helser Trophy — a large decorative cup depicting Yankee Ingenuity. This cup is to be awarded for art work done in any medium. Also the large Popularity Trophy will be awarded to the owner of the art piece receiving the most popular votes during the A.M.A. convention. Over 4000 members of the American Physicians Art Association will receive shortly, entry blanks, shipping labels and rules about this fourteenth art exhibition.

(Continued on page 242)

ORIGINAL ARTICLES

Obesity — Diagnosis and Treatment

James H. Hutton, M.D.
Chicago

Obesity is one of the major problems facing us today. It has an important public health as well as a cosmetic aspect. Unfortunately, most obese persons are more interested in their figures than they are in their health. We are told that the incidence of degenerative diseases would diminish if we could prevent or correct obesity.[1]

The dangers and disadvantages of obesity may be considered under three headings—Social, Economic and Physical.

Social. The old adage that nobody loves a fat man still contains a grain of truth. Obesity results in a degree of social ostracism, particularly for women. Some men dislike fat women no matter how intelligent or attractive they are otherwise. Consequently obesity reduces a girl's chances of establishing her own home.

Economic. Many jobs are not open to obese applicants. Clothing is more expensive. Life insurance rates are higher.

Physical. An increased incidence of hypertension, diabetes, heart disease, cancer, atherosclerosis, nephritis, toxemias of pregnancy, cirrhosis of the liver, emphysema and varicose veins is said to have been found among the obese.[1]

The death rate is one-third higher among those whose body weight is 20% above the average.[2] The death rate from coronary artery disease is 50% greater among the overweight.[2] Among those with 25% excess body weight the death rate from diabetes is eight times higher than among persons of normal weight.[2]

For every inch the waist measurement exceeds the chest measurement the person may subtract two years from his life expectancy.[3]

We do not know whether obesity is a causative factor in these diseases or whether the factor that leads to obesity also causes the diseases. At any rate, obesity often accompanies those diseases and is definitely not a sign of good health.

Etiology. What causes a person to become fat? Of course every obese person eats, or at some times has eaten, more food than was required by his expenditure of energy. But that is no explanation. Practically all obese persons were at some time thin or of normal weight. What happened to cause them to acquire the excess weight? Obviously in most cases some factor was added to or subtracted from their metabolic machinery.

Presented at Postgraduate Meeting, Jacksonville, Ill., March 30, 1950.

Most adults maintain approximately the same weight over periods of many years. At the same time they make no conscious effort to have their caloric intake equal their energy output. But the obese person has difficulty to keep from gaining weight constantly. This statement needs some qualification. Rony[4] points out that while, during the dynamic phase of their obesity, fat persons may consume large quantities of food, once the static phase is reached the fat person may eat small quantities of food. Why? What starts the process and why doesn't the gain in weight continue throughout life? Every one who deals with this question is familiar with the fact that it may be very difficult to obtain say a 20 pounds loss from 200 to 180. The latter figure is maintained with difficulty. Upon the slightest surrender to the demands of the appetite the weight rapidly goes back to the original 200 pounds and stops there without any further conscious effort on the patient's part.

If obese persons have inordinate appetites which lead to obesity, what caused the increased appetite? The patient did not always have it.

Does the fat person eat more than the thin one indulging in approximately the same activities? Does the obese person handle food as efficiently as the thin one? The answer usually is that he does and there is no generally acceptable evidence that he does not. But in the animal world there is some reason for doubt.

Rynearson[1] says that hypogonadism in castrated animals has been observed to cause obesity consistently. Krider[5] says that castration in hogs results in decreased activity and increased fattening and in more rapid and more economical gain.

When horses furnished the motive power on the farm, there were one or two horses on nearly every farm that were what we called "easy keepers." Such horses did the same work as the thin ones kept in adjoining stalls and yet were always fat or, as we said, "in good flesh." They were given less feed than the thin horses. Their intake was controlled as they got only what food was given them. Park[6] says that in nearly every bunch of beef cattle there will be one or two "poor doers." That is, they remain thin in spite of getting the same amount of food as the rest of the herd, and yet are apparently in good health. In the average beef breeding herd there will be a few cows that stay in extra flesh even though the cows are being fed only enough to keep them in breeding condition and the average cow may be in just fair flesh. One of the principles upon which livestaock breeding is based is that some animals make more efficient use of their feed, and, by selection, the general efficiency of the herd in this respect can be increased.

Long and his co-workers[7] showed that rats which ate their entire daily ration in a two-hour period gained more weight on the same amount of food than did rats which ate throughout the day.

Mr. George S. Halas,[8] of the Chicago Bears, in discussing body weight and eating habits of football players, says it is difficult to conclude that an individual will gain weight if he continues to eat as heavily after the playing season as he did during that time.

The latest addition to our ideas of etiology is that obesity is on an emotional basis. The obese person gets that way because eating furnishes a consolation for the frustrations that bedevil him. That seemed to be partially true in some cases in my own practice. However, there seem to be as many thin nervous people as there are fat nervous ones. Ever since Shakespeare's time fat people have been regarded as placid. Furthermore in times of stress thin persons tend to lose weight while fat ones gain. It seems much more likely that the strain, frustration or what-not merely aggravates a tendency already present.

The Endocrines. Some are allergic to the idea that the endocrine system has anything to do with the accumulation of obesity. Enthusiastic endocrinologists are prone to give the endocrines most of the credit—or the blame—for the disorder. Probably the truth will be found eventually between these two extreme views.

According to Conn,[9] while the endocrine influence in the etiology of obesity may be slight, it is important in determining the pattern of the obesity. He suggests that by carefully noting the distribution of his patients' obesity the physician may be led to the diagnosis also of some endocrinopathy. But if the endocrines have little if any part in causing obesity how do they exert such an important influence on its distribution?

In Cushing's syndrome the obesity is deposited about the face, neck and trunk. The skin is

marked by striae about the lower abdomen, iliac crests, lower back, the breasts, the axillae and the inner aspects of the upper arms and thighs. These are said to be due to stretching of the skin. However, two persons of the same height and build may put on approximately the same amount of weight in the same period of time, yet one may have numerous striae, the other none.

Recently[10] the injection of cortisone is reported to have been followed by the appearance of such striae long before the patient had gained enough weight to account for them. Because of this and certain other data we have to consider that obesity may sometimes accompany or be due to some glands.

For some years I've noticed that it is very difficult for patients with these striae to lose weight. After Cushing[11,18] and others[12] reported some relief in Cushing's syndrome by irradiation of the pituitary, we have used small doses of radiation (50-100 r) applied to the pituitary and adrenal regions of patients showing signs of basophilism. Results have sometimes been very good. Patients rapidly lost several pounds and reported an improved sense of well being. Such cases are not common.

Recently Wilkins,[13] quoting Albright, pointed out that excess of the glycogenetic cortins which tend to cause the utilization of amino acids for glycogen formation and to inhibit protein anabolism may account for the diabetic sugar curve, obesity, evidence of protein deprivation and other signs of metabolic disturbnce encountered in Cushing's syndrome.

Long ago Bomskov and Schneider[14] reported that some rats survive bilateral adrenalectomy and become giants (wheight 350 gm.—normal 200-250 gm). In all of these, accessory adrenal cortical tissue was found exceeding in mass the removed organs. They concluded that the obesity was due to hyperfunction of the adrenal cortex.

In the past it has been thought that whatever part the endocrines played in the accumulation of obesity was on a hypofunctional basis. So we spoke of pituitary (hypo) obesity and hypothyroid and hypogonad types. The obesity resulting from hypothalamic-pituitary damage supports that idea. Myxedema is usually accompanied by considerable gain in weight and hyperthyroidism is characterized by weight loss. But acromegaly is accompanied if not by obesity at least by gain in weight, and Simmond's disease is marked by weight loss. Of course neither of these involve the posterior lobe, which was the one blamed for the obesity.

The pituitary has been blamed more often than any other gland and there is considerable evidence both for and against the idea that it is in some way responsible. Perhaps the most convincing evidence that the pituitary-hypothalamus-midbrain center is involved in some manner is the fact that obesity regularly follows properly placed lesions in the hypothalamus. Heinbecker and his co-workers[15] point out that the maximum degree of obesity occurs after hypothalamic lesions which are also followed by degeneration and loss of the basophilic cells of the hypophysis. They express the opinion that lesions of the hypothalamus, or of the pituitary, or of both, may lead to obesity.

And so the question as to what role, if any, is played by the endocrines is still not understood.

Whether heredity plays any part in obesity is still an unsettled question, there being some evidence both for and against the idea that in some cases obesity is an inherited characteristic. In a series of more than 800 patients seen in my own practice 46 patients presented some evidence that heredity played a part in their obesity.

There are some significant points in the history of many obese persons. The majority of children of the Foehlich type—with apologies for the use of that term—dated the onset of their obesity to some infection such as mumps, measles, chicken pox, or to an operation such as removal of tonsils and adenoids or an appendectomy. Women most often dated their obesity from pregnancy or an operation. Furthermore most of these women belonged to the pituitary type—that is, they were of average height or less and the obesity was of the girdle type. Most of them weighed less than six pounds at birth. They were thin until the onset of obesity. Many times their weight at marriage was about 100 pounds. They might have been able to nurse their first baby but not the following ones.

Infection, trauma and pregnancy often result in pituitary damage. At any rate, many obese

women in my series also had some degree of hypopituitarism.

TREATMENT

For those who believe that obese persons owe their trouble to laziness and lack of will power treatment is a very simple matter. All that is needed is to give the patient a diet of 600 to 800 calories and a lecture on the beauties of living on this semi-starvation diet. After that the patient is on his own. But in private practice treatment, if it is to be successful, is much more complicated.

(A) *For Children.* The diet needs to be much less restricted than in the case of adults. Unless they are greatly overweight or tall for their age, they do not need to lose much weight. If they cease gaining, their increase in height will soon result in normal weight for height. I usually ask them to refrain from pie, cake, ice cream, candy and soft drinks. Their intake of bread, butter, potatoes and gravies should be mildly restricted.

All of them should have thyroid to tolerance. This is best determined by giving them gradually increasing doses until that dose is reached which causes tremor, tachycardia, nervousness or insomnia. The dose should then be decreased by about 25% and continued for some months.

It is seldom necessary to give them appetite-depressing drugs or hypodermic medication until after the age of 10.

For boys with hypogonadism it is necessary, after the age of 10 or 12, to give some chronic gonadotropin such as APL, Antuitrin-S or one of that family in doses of 150 to 250 units twice weekly. With this one should also give posterior lobe extracts in doses just short of that amount which causes faintness, nausea or annoying intestinal cramps. Most of them will tolerate five minims or more of the obstetrical preparation. If the genitalia do not respond promptly, testosterone proprionate may be given alternate months in doses of 10 mg. twice weekly.

The urine should be examined for sugar at least every 90 days. In an occasional case glycosuria follows the administration of the gonadotropins.

As normal weight and development is approached, the frequency of treatments should be gradually reduced. The child should be seen every month or so, however, so that the slightest tendency to put on excess weight again may be promptly checked.

(B) *Adults.* This may be discussed under the following heads:

Diet
Appetite-depressing drugs
Diuretics
Endocrine preparations
Emotional readjustment

We are but little better off now in the treatment of adults than we were in the treatment of diabetes before insulin came to our assistance. One should take a careful history and try to find out the sequence of events that preceded and accompanied the gain in weight and so gain some idea of the etiology in each case. A careful physical examination is required. Such laboratory work as is indicated should be done. This should include at least a complete blood count, an analysis of a 24-hr. collection of urine, and basal metabolic rate. Where feasible a glucose tolerance or insulin tolerance test or both should be done. Determinations of the blood non-protein nitrogen, uric acid and serum calcium are often helpful.

Diet. Whether the obese person eats more or less than his thin friend is a matter of academic interest when it comes to treatment. If he expects to lose weight he will have to eat less than he is presently consuming. If the obesity is due to emotional conflicts, as may be true in an occasional case, the physician should help the patient to resolve these and thus get rid of the urge to eat. Even so the patient will have to acquire new eating habits. He will have to learn to limit his intake to his needs.

Most of us with good appetites eat much more than we need, but some safety device within our bodies enables us to dispose of the excess with little if any gain in weight. The best example of this was what happened before and during the war. Before the war when we were seated in a restaurant the waiter first placed before us a basket of rolls and a plater of butter. We nibbled on these, eating one or more rolls and butter before the meal was served. Of this we ate as if nothing had preceded it. Came the war and the rolls and butter disappeared, and sugar was restricted. We otherwise ate as before and lost no weight.

Rony[16] quotes Wilder to the effect that there must be some device other than appetite to regulate weight, and that it is easier to understand why some people get fat than it is to understand why most of us do not.

Psychotherapy plays some part in dieting in all cases. One must impress the patient with the fact that the physician can do no more than assist him to lose weight. Most of the responsibility rests on the patient. One must also secure the cooperation of the family. The mother or the grandmother may feel that the patient is being starved—and in our present state of ignorance she is partly right—and that more food must be consumed than is allowed in the diet. Unless this idea can be eradicated or the patient taught to ignore it any reducing regime is likely to fail.

The diet must be adequate as regards protein, vitamins and minerals. My own plan is to provide about one gram of protein per kilogram of body weight. This is one place where the physician may be forgiven for using vitamin preparations rather freely. The diet should be as bulky as can managed and as generous as can be allowed so that the patient will lose weight slowly—one or two pounds per week.

In earlier years we gave adults a diet consisting of C. 80, P. 80, F. 40, producing 1000 calories. It was difficult for patients to stick to this meager diet. So of late years we use a 1400 calorie diet (C. 135, P. 80, F. 60). This is sufficiently liberal that patients find it no great hardship and most of them will follow it reasonably well.

Some attention must be paid to fluid balance. The obese body seems to hold water like a sponge. Its retention in undue amounts seems responsible for the plateau on which obese persons sometimes find themselves. One can reduce the fluid intake, limit the amount of sodium chloride or use ammonium chloride and salyrgan-theophylline. The latter procedure gets rid of large quantities of water in a matter of 24 to 48 hours, but the body seems to re-accumulate it rather quickly so that the net gain hardly seems worth the effort. Reducing the fluid intake and cutting down on the sodium chloride seems to work better. Some patients have a low serum calcium. The administration once or twice weekly of 1 cc. of parathyroid extract is helpful in these.

In my experience many patients who eat when they are unhappy are also the victims of some endocrine disorder. There is another curious thing in this connection. While fat people may eat because they are unhappy, thin persons lose their appetite under the same circumstances, so that under emotional strain the fat tend to get fatter and the thin to lose weight.

Some obese persons owe their condition to an uncontrolled appetite or they formed their eating habits earlier in life when they needed large quantities of food. All that is needed in such cases is re-education.

Probably most men who treat obesity give their patients thyroid, not because they expect any great help from it because they have so little to offer the patient. It is a much maligned drug. If it is not of great assistance, it certainly does no harm if the doctor keeps the patient under careful supervision. Frequent repetitions of the B.M.R. are unnecessary. One can usually control the dosage by clinical observation. This is discussed under the treatment of children.

Whether the hypopituitarism had any other relation to the obesity than coincidence I would not attempt to say, but many obsese women in my practice were victims of hypopituitarism.

Rowe and Lawrence[17] said that the obesity associated with pituitary malfunction was "stubbornly resistant" to dietary treatment, and that it was usually impossible to reduce weight and keep the patient well at the same time. Cushing[11] since has made similar observations.

In those cases having pituitary deficiency one should give the patient pituitary extracts. I use a crude anterior lobe extract made by Parke, Davis and Company. It was originally marketed as Antuitrin (not Antuitrin-S). It is now sold only to physicians who apply directly to the home office for it. The usual dose is 0.5 to 1.00 cc. once or twice weekly. Posterior lobe extract is given in doses just short of that amount which causes faintness, nausea or annoying intestinal cramps. The two extracts are given in the same syringe at the same time. If the patient has a high fasting blood sugar or a high sugar curve, his reaction to these extracts is tested by determining the blood sugar before and one hour after an injection. If there is an undue rise the extracts are not used in treatment.

If a woman is experiencing menstrual difficulties and is of premenopausal age she is given low doses of irradiation directed at the pituitary and ovaries if she fails to respond promptly to the other measures already described. In women with hypopituitarism the use of pituitary extracts gives more relief than any other measure. They feel so much better following these injections that many continue the injections even when they make no great effort to adhere to the diet.

Appetite-Depressing Drugs. Benzedrine sulfate is alleged to dull the appetite and make the patient feel better generally so that it is easier for them to stay on the diet. Dexedrine sulfate has about the same effect. The usual dose is 5 or 10 mg. twice daily. Desoxyn and methedrine hydrochloride have similar effects.

Diuretics have already been mentioned.

Prognosis. In children the genitalia can be brought to full normal development. Usually the patients attain normal weight and proportions and go their way without further treatment.

In adults no such happy outcome occurs. If the patient sticks to the diet and treatment he can lose the desired amount of weight. If he will maintain this figure for some time the body seems to adjust itself to this new weight level and the diet may be less restricted without gain in weight.

However, obesity continues to be one of our most important unsolved problems. Obese patients are entitled to all the loving care we can give them.

BIBLIOGRAPHY

1. Gastineau, Clifford F.; Rynearson, Edward H., and Irmisch, Alice Karslake: Treatment of the Fat and Lean. J.A.M.A. **139**: 86-91, January 8, 1949.
2. King, Charles Glen: "Overweight" Illinois Health Messenger **20**: 23, 92, December 1, 1948.
3. Ivy, A. C.: "Obesity the Enemy." News Week, October 20, 1947.
4. Rony, Hugo R.: Personal communication.
5. Krider, J. L.: Personal communication.
6. Park, Russell L.: Personal communication.
7. Tepperman, J.; Brobeck, J. R., and Long, C.N.H.: The Effects of Hypothalmic Hyperphagia and of Alterations in Feeding Habits on the Metabolism of the Albino Rat. Yale J. Biol. Med. **15**: 855, 1943.
8. Halas, George S.: Personal communication.
9. Conn, J. W.: Etiological Aspects. Pysiological Review, **24**: 31-45, 1944.
10. Sprague, Randall G.; Power, Marschelle H.; Mason, Harold L.; Albert, A.; Mathieson, Don R.; Hench, Philip S.; Kendall, Edward C.; Slocumb, Charles H. and Polley, Howard F.: Observations on the Physiologic Effects of Cortisone and ACTH in Man: Archives of Internal Medicine **85**: 199-258, February 1950.
11. Cushing, Harvey: The Basophil Adenomas of the Pituitary Body and Their Clinical Manifestations (Pituitary Basophilism) Bull. Johns Hopkins Hosp. **50**:137-195, March 1932.
12. Deakins, Martin L.; Friedgood, Harry B., and Ferrebee, Joseph W.: Some Effects of Testosterone, Testosterone Propionate, Methyl Testosterone, Stilbestrol and X-ray Therapy in a Patient with Cushing's Syndrome. J. Clin. Endocrinology **4**: 376-384, August 1944.
13. Wilkins, Lawson: A Feminizing Adrenal Tumor Causing Gynecomastia in a Boy Five Years Contrasted with a Virlizing Tumor in a Five-Year-Old Girl. Clin. Endocrinology **8**: 2, 123, February 1948.
14. Bomskov, C., and Schneider, E.: Adrenal Cortex and Obesity. Klin. Wchnschr. **18**: 12, January 7, 1939, abstracted in J.A.M.A. **112**:1202, March 25, 1939.
15. Heinbecker, Peter; White, H. L., and Rolf, Doris: Experimental Obesity in the Dog. A. J. Physiol. **141**:549-558, June 1944.
16. Rony, Hugh R.: Obesity and Leanness, Lea & Febiger, Philadelphia, 1940, p. 201.
17. Rowe, Alan Winter, and Lawrence, Charles Henry: Studies of the Endocrine Glands. II. The Pituitary. Endocrinology, **12**:3, 245-322 May-June, 1928.
18. Cushing, Harvey: Paper Relating to the Pituitary Body, Hypothalamus and Parasympathetic Nervous System, Charles C. Thomas, Springfield, Ill. 1932.

Physicians' Art Show at Atlantic City (Continued)

The Annual Art Banquet will be held Tuesday evening, June 12 at the Marlborough-Blenheim Hotel, Atlantic City, N. J.

F. H. Redewill, M.D., Sect'y
America Physicians Art Association
760 Market Street
San Francisco 2, California

Tuberculosis is such an insidious disease that no physican can deny the existence of it without adequate roentgenologic study. All patients, regardless of their complaints, should have the benefit of chest X-ray examinations. This is particularly true in conditions such as diabetes and pregnancy where a higher prevalence incidence of tuberculosis is found. Moreover, the taking of a single roentgenogram may not be enough, and so, with persisting symptoms or a suspicious lesion, the X-ray may need to be repeated. J. Mich. State M. Society, Kenneth J. Feeney, M.D., November, 1949.

Clinical Correlation of the Electrocardiogram

George A. Hellmuth, M.D., F.A.C.P. and Allen H. Weiss, M.D.
Chicago

THE ELECTROCARDIOGRAM IN GENERAL PRACTICE

With the ever broadening scope of implementation in the field of clinical diagnostic medicine, the use and limitation of medical tools must be adequately evaluated. It is a propensity that is human to hope for that accurate diagnostic instrument that will simplify and reveal the causative factors of illness. Objective determinations such as laboratory procedures expressed by graphs, tracings, and mathematical findings, seem to connote to the physician a greater accuracy and diagnostic finality of normal and abnormal human function. To be sure, such objective determination confined within its limited sphere may be exceedingly accurate and one may not question its factual information. The interpretation and correlation of these findings in clinical medicine, nevertheless, is difficult, and may actually be misleading, because of the inherent limitations of these procedures. Moreover, our understanding of the wisdom of the body is often woefully inadequate. The physician's awareness of the limitations of implementation in medicine adds to his clinical judgment.

The electrocardiogram is a good example of the vicissitudes found in an objective diagnostic procedure. It must be continually stressed that the pattern of an electrocardiogram is merely an electrical expression of a limited physiological function of the heart. The pattern graphically inscribes the electrophysiological change of two fundamental functions of heart muscle: (1) rhythm or the origin of the cardiac impulse, and, (2) its spread of conductivity through the heart muscle. It will not give information regarding the strength, contractility or tone of the myocardium. The electrocardiogram cannot indicate the life expectancy of the patient. The clinical value of the electrocardiogram is therefore in the recognition of various arrhythmias and the clinical interpretation and correlation of the normal and abnormal electrical conduction of heart muscle.

It is unfortunate that the attitude of so many physicians who are using the electrocardiogram as an aid in the daily management of patients, lack the desire to understand at least a few of the fundamentals of the electrocardiogram. All physicians, regardless of their interest in heart disease, should have a basic grasp of the use and limitations of the electrocardiogram, the kind of information this proceedure can give and its relation to the correct management of the patient.

Dr. F. N. Wilson[1] has admirably expressed his opinion in these often quoted words: "We shall not attempt a long discussion of the present wretched state of the electrocardiographic diagnosis, or the misery attributable to it. The errors made in this field are due in large measure to the same human frailities that are responsible for errors in others, medical and non-medical. We think also that there are altogether too many physicians who want to, and try to read electrocardiograms, but are unwilling to go back to the fundamental principles upon which the interpretation of the electrocardiogram must be based. In our opinion, it is impossible to use diagnostic criteria intelligently unless they are fundamentally sound and the foundations on which they rest are clearly understood by the user. Electrocardiography is one of the most exact of diagnostic methods. Its potential value is great, but it is not being used to the best advantage. . . ."

The understanding of the electromotive function of the myocardium can best be visualized by turning to the study of the electrical state of the cell (See Figure 1). In the resting cell, the molecules of the membrane are arranged in such a manner that the external surface of the cell is of positive charge in relation to the inside of the cell. This is a state of electrical balance or

Department of Medicine, Stritch School of Medicine, Loyola University.

1. Wilson, F. N., Rosenbaum, F. F. and Johnston, F. D. Interpretation of the Ventricular Complex of the Electrocardiogram, Advances in Internal Medicine 2, 1, 1947.

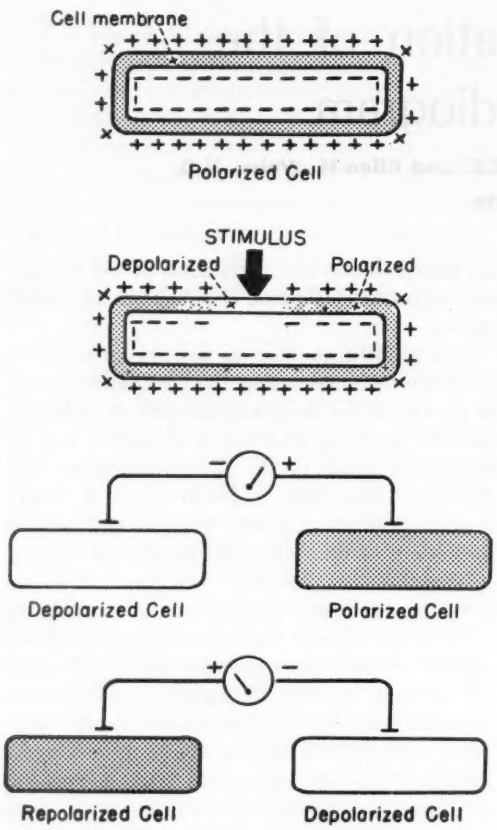


Figure 1.—Top figure is diagramatic representation of a normal resting cell showing the polarized state across the cell membrane, positive outside, negative inside. When a stimulus is applied, the polarized state is lost and no potential exists between the outside and inside of cell membrane. As is shown in the lower two diagrams, a current will flow between a polarized cell and a depolarized cell; a repolarized and a depolarized cell. The positive deflection is always toward the polarized state.

polarization, that is, positive and electrical charges are equal. When an area of the cell membrane is stimulated in some way, mechanical, chemical or electrical, this molecular arrangement is disorganized and the area loses its polarity. Neither side of the cell membrane has any charge. In this state, the surrounding polarized areas in the external cell surface are positive in relation to the stimulated depolarized area where no electrical charge exists and an electrical current is set up. The depolarization wave spreads in all directions from the point of stimulation. This wave has form and direction. Its spread through each cell and from cell to cell in the ventricular myocardium is recorded in the QRS complex. Repolarization is the return of the cell from the depolarized state of no electrical charge to the resting state of electrical balance. The T wave is the recorded ventricular repolarization wave. From the above discussion it should be noted that those areas ahead of the wave of depolarization are positive in relation to the stimulated region. Thus, in the spread of the cardiac impulse there is changing amount of polarized and depolarized tissue, or, changing electrical potentials that are recorded above and below an isoelectric line as the complexes of the electrocardiogram.

Disturbance of the electrical conductivity of the cell, such as delayed repolarization caused by anoxemia or inflammation, is reflected in the pattern of the electrocardiogram. For example, as will be described later, subepicardial injury from pericarditis or subepicardial infarction may change the repolarizing contour of a normal upright T wave to an abnormal inverted T wave.

It should be noted that the abnormal electrical pattern produced by injury to the myocardium is merely an expression of the abnormal electrophysiological charge, and lacks specificity of the causative factors. Subepicardial infarction and pericarditis may produce similar abnormal patterns and therefore the cardiographer must be extremely cautious in his clinical interpretation. A description of the abnormal electrophysiological changes should be stated and not a diagnosis of a disease process. A coronary arterial occlusion does not in itself produce an abnormal electromotive force because the coronary arteries do not cause a detectable electropotential charge. However, the effect of a coronary occlusion with an acute myocardial infarction shows a marked change of pattern because of the disturbed electropotentiality produced by the myocardium. The current of injury showing the abnormal conductivity is not due to the dead myocardial fibers (dead heart muscle is electrically inactive), but rather from the zones surrounding the dead tissue, which are in a state of anoxia, injury and repair.

Modern electrocardiography received impetus in clarity of understanding with the advent of the unipolar leads. The standard leads I, II, and III are generally considered to be inferior to the unipolar limb leads because the former

represent the summation of two influencing potentialities, and therefore represent combined lead patterns. For example, lead I of the standard electrocardiogram represents the combined potentiality of the left arm and right arm, and does not portray the pure potentiality of either arm. On the other hand, the exploring unipolar electrode mainly records the potentiality of a definite local heart area subtending the electrode. Not only does this allow for better localization of pathology but it also provdies for more accurate diagnosis of normal positional variants some of which were sometimes considered as abnormal in the standard leads. Axis deviation in the standard leads has lost its clinical importance unless associated with marked deviation, hypertrophy or strain patterns. Mild left axis deviation as a single finding in the standard limb leads was formerly interpreted by the electrocardiographer as indicative of left ventricular enlargement. Later it became evident that a normal transverse position of the heart from hypersthenic build may also produce this finding. Today, in order to reeducate the physician, who seeks information from the electrocardiographer, the interpretation must be more explanatory. For example, the interpretation of left axis deviation in the standard limb leads and a unipolar pattern of a normal horizontal position of the heart with no other remarkable findings should be described as follows: the heart is in a normal horizontal electrical position accounting for the finding of left axis deviation in the standard leads. Similarly, in the case of the right axis deviation and vertical position of the heart: the heart is in a normal vertical electrical position accounting for the finding of right axis deviation in the standard leads.

Ideally, the electrocardiogram should be interpreted by the physician who is managing the patient. Since this is not ordinarily the case, the electrocardiographer should have at hand at the time of the reading, certain clinical information that should be supplied by the clinician. Most physicians do not realize that this information may aid the electrocardiographer's interpretation. Electrocardiographic laboratories should have available for the practicing physician standard requisition slips with the following information: age, height, weight, body build (asthentic, sthenic, hypersthenic), blood pressure, amount and date of digitalis or quinidine therapy, dates and availability of previous electrocardiograms and the reason the clinician desires an electrocardiogram. The lack of this information may detract from the proper interpretation of the electrocardiogram. Digitalis, for instance, has a profound effect on the electrocardiogram, and may mimic various abnormal patterns, which defy adequate interpretation. It is important therefore, that the time of digitalis administration and discontinuation be known to the cardiographer, keeping in mind that it requires about two weeks to fully excrete this drug. The finding of minor changes of pattern that would ordinarily be classified as probably a normal variation, may prove to be an important clue for further electrocardiographic study. The cardiographer, therefore, must be informed by the referring physician of the suspected clinical diagnosis. The clinician should be aware of the value of serial electrocardiograms in appropriate cases, so that the full diagnostic significance of pattern changes may be made available to him. This is especially true in cases of acute myocardial infarction. Fleeting serial changes returning to a normal curve within a few days are usually not due to a recent myocardial infarction, and are more commonly found in cases of acute pericarditis, pulmonary infarction, and coronary insufficiency. Most cases of acute myocardial infarction show suspicious or characteristic patterns within twenty-four to forty-eight hours. Those cases that do not reveal characteristic patterns within this time almost invariably show minor suspicious findings that become typical within seven to twelve days. In a small percentage of cases interpretation of a myocardial infarction can only be suspected or made by serial pattern changes produced over a period of weeks. In such cases there may be no single pattern curve that in itself is diagnostic and therefore must be inferred from serial changes. The frequency of recording serial electrocardiograms in cases of acute myocardial infarction should depend upon the clinical findings and nature of the pattern change. Considerably more information can be gained in atypical clinical cases with non-specific graphic changes by daily pattern study for 2 to 4 or 5 days and then if needed every 3 or 4 days until the pattern stabilizes or becomes definite. The atypical graphic changes of coronary disease are usually associated with subendocardial or subepicardial

infarction and are not ordinarily transmural. An intramural infarction does not extend to the epicardium or endocardium of the heart, and therefore, may show no abnormal electrocardiographic findings. This unusual condition is caused by the blocking of the abnormal electromotive force from reaching the electrodes because of a layer of normal myocardium surrounding the intramural infarction. The electrocardiogram may fail to show characteristic patterns in cases of a small infarction of the heart. Multiple myocardial infarctions are common and are present in the vast majority of fatal coronary disease. Occassionally multiple myocardial infarctions may completely obscure the diagnostic electrocardiograpric pattern. Septal infarctions may also be present without pattern change but should be suspected in cases of suspicious clinical myocardial infarction when there is a sudden appearance of A-V block or bundle branch block. Abnormal electrocardiographic waves simulating the pattern of acute myocardial infarction may be produced by pulmonary infarctions, angina pectoris, syphilitic coronary orifice disease, pericarditis, all forms of disease of the coronary arteries and all causes of localized cardiac destruction. High lateral myocardial infarctions may be difficult or impossible to detect with the usual twelve lead electrocardiogram. In such cases it may be necessary to explore the precordial area one or two interspaces above the level of the conventional unipolar leads. With the proper use of the modern unipolar leads, however, it is very infrequent that an electrocardiogram fails to show abnormal electrophysiological change in cases of acute myocardial infarction.

The electrical evolutionary pattern changes noted during the healing state of a recent myocardial infarction is an extremely difficult correlation for the cardiographer. The practicing physician frequently requests this opinion. Ordinarily this is a hazardous interpretation and should be so stated with cautious wording because the electrocardiogram does not always show accurate evidence of progression or regression of a disease process. A second acute myocardial infarction in the opposite ventricular wall may neutralize and balance the electrical potentiality of the primary infarction so as to show no evidence of either infarction. A false impression of improvement and healing of the area infarcted would therefore be given when actually the heart would be in a more serious state. It is true, however, that many patterns do return to a fairly normal or frankly normal curve and one may assume that such a pattern is associated with healing. A fair number of graphs show a gradual return to a more normal pattern, but may retain abnormal features such as a pathological Q wave which maybe the only vestige of the healed myocardial infarction. Some curves remain frankly abnormal for months and years, although clinically such patients remain in a fairly good state of health. Why some patterns remain abnormal and out of proportion to the clinical state of the patient remains unknown.

The clinical diagnosis of angina pectoris is usually made from the history of characteristic precordial distress and its response to the use of coronary dilators. Although the electrocardiogram is quite normal in most cases of uncomplicated angina pectoris one cannot assume therefore that the heart is free of coronary disease. Complicated angina pectoris may show electrocardiographic evidence of coronary disease and not infrequently the presence of recent or old myocardial infarctions. The prognosis of angina pectoris with abnormal electrocardiographic findings indicate a more serious outlook. In those cases of uncomplicated angina pectoris, where the diagnosis is not certain the functional tests of coronary anoxia such as the use of the Master Two Step test are sometimes of diagnostic aid. These tests include an electrocardiographic record taken during an attack of induced angina pain and may show changes that will support a diagnosis of angina pectoris.

The nomenclature of certain electrocardiographic terms is sometimes confusing to the practitioner. It is unfortunate that the expression of abnormal electrical potentiality has been so poorly termed myocardial damage. In the past, the electrocardiographer used the term myocardial damage for those changes that showed a deviation from normal, yet failed to fit a specific pattern. Actually, an appreciable number of these so-called abnormal patterns are due to conditions unrelated to damage of the heart muscle. Normal position variations have been shown by the twelve lead electrocardiogram to explain some of the electrical changes that were formerly termed myocardial damage. Electrolyte change, extra-cardiac disease, glandular and nutritional disturbance, and a host of other con-

ditions may produce electrical changes which may not be related to myocardial damage. The word *damage* connotes disease, and should never be used in the interpretation of the electrocardiogram. The finding of a nonspecific abnormal condition should not be stated as a clinical diagnosis, but rather in terms of detailed electrophysiological change. This phase of electrocardiographic interpretation is of the greatest importance because the interpretation is only as good as its interpreter. More than any other factor, errors in careless judgment have placed the electrocardiographic interpretation in unjustifiable disrepute. The practicing physician must be acquainted with the general objectives that the electrocardiographer wishes to convey in the clinical interpretation. The reeducation of the physician to a more accurate terminology of the electrocardiogram can readily be attained by a careful wording of the interpretation.

The general practitioner should be acquainted with the meaning of various electrocardiographic terms. Low voltage, ventricular strain patterns, partial A-V heart block and bundle branch block are conditions detected mainly by the electrocardiogram. Low voltage, for example, is purely an electrophysiological condition and may be a difficult clinical correlation. The finding of this condition in the unipolar leads and especially in the precordial leads is of greater clinical importance than when found only in the standard leads (lead I, II and III). As a single finding in the standard leads, low voltage is not an infrequent normal variant. Poor electrical conduction media surrounding the heat in such cases as emphysema, obesity, thick thoracic walls and stocky builds may be a normal caustative factor of low voltage. Unusually good conductors of cardiac current may produce low voltage by a short circuiting mechanism, shunting currents back to the heart and away from the electrodes. This occurs in the presence of fluid in the body and tissue spaces and is commonly seen in cases of pericarditis with effusion, ascities, myxedema and pleural effusion. Other causes of low voltage may be found in cases of Pick's disease, glandular disturbance, vitamin and nutritional deficiencies, mediastinal and pulmonary tumors, pneumonia and various lung diseases. Almost all forms of organic heart disease may produce low voltage. This condition is especially common and significant in coronary heart disease. Low voltage in cases of organic heart disease is produced by virtue of the disturbed conduction through normal and abnormal areas of the heart muscle, neutralizing and interfering by block mechanism with the production of adequate cardiac currents.

Ventricular hypertrophy and strain patterns of the electrocardiogram have been generally used as interchangeable terms. Left ventricular hypertrophy and strain patterns indicate that an overload of the left ventricle is present and is producing an abnormal functional change of electrical conduction in the left ventricular myocardium. Clinically this condition is usually found in the severe and later stages of hypertension, aortic insufficiency and/or stenosis and coronary disease.

Right ventricular hypertrophy and strain pattern usually indicate that an overload of the right ventricle is present and is producing an abnormal functional change in the right ventricular myocardium. This condition is usually found in cases of mitral stenosis, cor pulmonale, congenital heart disease, and scoliosis of the spine. The heart is ordinarily in a vertical electrical position of the chest. Left or right ventricular strain patterns are generally correlated as true from the clinical, x-ray, and post mortem findings. Although these statements are usually correct, certain discrepancies arise that fail to correlate with the clinical findings. These patterns may not indicate the severity of the cardiac disease process. Strain patterns may be reversible with or without an obvious cause. This electrocardiographic finding may be absent in severe clinical hypertension and in proven postmortem cases of advanced hypertensive heart disease. Furthermore, the exact physio-pathological nature of the electrocardiographic changes of strain patterns are unknown. Generally, however, a typical pattern of ventricular strain may usually indicate a greater abnormal physiopathological process of the heart than in similar cases that fail to show strain pattern.

Heart block indicates the presence of an abnormal prolonged electrical conduction. It is almost always due to an organic myocardial disturbance. The state of heart block may be of short or long standing. Fleeting or intermittent heart block is less serious than a long standing condition. There are two important common forms of heart block: (1) A-V heart block indi-

cates an abnormal conduction between the auricles and ventricles, and (2) bundle branch block which is found in conditions that interfere with normal electrical conduction in the ventricles. A-V heart block may be classified as occurring in three clinical forms: (1) A-V heart block of the partial or first degree type. In this condition the conduction time is merely prolonged. Each auricular impulse, although delayed, reaches and excites a ventricular contraction. (2) A-V heart block of the incomplete or second degree type. In this form of heart block some of the auriculor impulses fail to reach the ventricles. (3) The last type, complete A-V heart block, is present when the auricular impulses fail to reach the ventricles and the former and latter beat independently of each other.

Generally, the presence of a P-R interval (from the beginning of auricular excitation to the beginning of ventricular conduction) over 0.20 seconds in an adult and over 0.18 seconds in a child under eight to ten years of age, indicates the presence of partial or 1st degree A-V heart block. Not only age, but weight and especially cardiac rate, are important in the classification of a borderline PR intervals as possible partial heart block. A rate of 70 per minute in a large adult male will allow a classification of a PR interval of 0.21 seconds as a normal finding, whereas a rate of 130 per minute in the same individual with a PR interval of 0.18 seconds should be classified as a partial or first degree A-V heart block. Similarly, a rate of 70 per minute in a child of two to six years of age, with a PR interval of 0.16 seconds is the upper limits of normal whereas a rate of 130 per minute would indicate a definite first degree A-V heart block. However, a slight abnormal prolongation of the PR interval producing a partial heart block, without a history of heart disease, should not be the sole reason for the diagnosis of cardiac disease. Vagotonia, cartotid sinus sensitivity and digitalis effect may produce a mild partial block in a normal heart. Conduction fatigue secondary to prolonged tachycardia is reversible and not indicative of serious organic heart disease. Various infections especially of the upper respiratory type without evidence of rheumatic fever or diphtheria, may produce unimportant mild and temporary prolongation of the PR intreval. Significant A-V heart block may occur in organic heart conditions when there is present degeneration or vascular disturbance, and in toxic or inflammatory processes of the heart. Heart block is found most commonly in elderly patients with arteriosclerotic heart disease. Active rheumatic fever may produce a prolongation of the PR interval. This is commonly found if serial graphs are taken. More severe degrees of heart block are less commonly found, but generally indicate the severity of the cardiac lesion. First degree A-V heart block may occassionally persist for years without evidence of an active disease process. Fibrosis and calcification of the mitral valve may compress the conduction system and produce a persistent heart block. Auricular hypertrophy may by increasing the height and width of the P wave produce a prolonged P-R interval. The late stages of hypertensive heart disease and syphilitic aortic disease complicated by coronary orifice involvement are not uncommonly found with various stages of heart block. Complete heart block is found most frequently in senile heart disease, coronary sclerosis, and in old advanced rheumatic mitral valvular disease.

Bundle branch block (QRS interval prolonged 0.12 seconds or more) is entirely an electrocardiographic finding. Bundle branch block is the name generally used for an impaired or depressed conduction of the electromotive force through the ventricles. The normal pathway of conduction to the ventricles is from the lower node by way of the common bundle to the right and left bundle branches. The impulse then reaches the myocardial fibers by way of the Purkinje system.

Chronic or persistent bundle branch block is almost always indicative of serious organic heart disease. Intermittent or transient block is usually associated with less serious cardiac involvement. Wolff-Parkinson-White syndrome, characterized by a short PR interval and wide QRS complex is not a true bundle branch block and is a normal conduction variant in the vast majority of cases.

Bundle branch block is found most frequently after the age of 50 years. Hypertensive and coronary heart disease are the most frequent causes of bundle branch heart block, while rheumatic heart disease and syphilitic heart disease are relatively less commonly found. Transient bundle branch block is occassionally associated with congestive heart failure of the acute type, recent

myocardial infarctions and acute infections. Quinidine and related drugs as well as electrolyte disturbance may produce a marked depression of the ventricular cardiac conduction.

The most important prognostic criteria of bundle branch block is not dependent upon whether the right or left bundle lesion is present but rather upon the nature of the underlying disease process. Bundle branch block in the presence of cardiac enlargement or poor cardiac reserve is especially a serious prognostic sign. The overall survival rate of bundle branch block is about 3 years. Progressive heart disease with this type of cardiac lesion indicates that the outlook is poor and limited, very few patients live more than one or two years. If the cardiac disease is not rapidly progressive and the patient survives the first year the average life span may then be close to 5 years. Right bundle branch block in the presence of rheumatic heart disease usually indicates a very serious prognosis. Patients with bundle branch block and hypertension without evidence of coronary disease have a longer life span. Generally individuals with right or left bundle branch block, without detectable abnormal cardiac finding, or heart disease without obvious etiology, have the best prognosis. This is especially true in the right bundle branch block type, most of these individuals live longer than 5 years.

The association of an acute myocardial infarction and bundle branch block is not an infrequent condition and is one of the most serious prognostic signs in the latter condition. It should be noted that the electrocardiographic pattern of an acute myocardial infarction is almost never found in cases of left bundle branch block. The electrical potential in such conditions is so abnormally conducted from the right to the left ventricle as to completely obscure the characteristic pattern of an acute myocardial infarction. In right bundle branch block, however, the path of electrical conduction passes through the left ventricle before proceeding to the right thereby allowing the area of infarction to be characteristically patterned in those leads that face the left ventricle.

INTERPRETATION OF THE ELECTROCARDIOGRAM

The purpose of the electrocardiogram is to record the changes in potential effected in the heart during depolarization and repolarization. Obviously, it would not be feasible to record the electrical changes in all areas of the heart at one time. Therefore attention is focused on isolated areas of the heart through various leads or electrodes. The modern electrocardiogram should consist of at least twelve leads including three unipolar limb leads, the three bipolar conventional limb leads and six unipolar chest leads. The electrode of a unipolar lead can be likened to a camera lens through which a recording or picture is made of a certain area of the heart. The electrode through which the focus is made is the exploring electrode. The other electrodes, indifferent electrodes whose charge is practically nil, are needed to complete the circuit through the galvanometer. The leads are named according to the position of the exploring electrode, that is AVR, AVL, and AVF focus upon the heart from the right shoulder, left shoulder and region of the left groin respectively. These unipolar limb leads each focuses upon a large area of the heart. For instance, AVL looks at the heart from the left shoulder and focuses upon the entire left lateral aspects of the heart. The unipolar chest leads (V precordial leads) on the other hand, get a closeup view of smaller areas of the heart. The conventional limb leads I, II and III are not unipolar but view the heart through two electrodes. For example, lead I is connected between electrodes in the left arm and right arm and is therefore the algebraic summation of leads AVL and AVR. From the above discussion it can be seen that the position of the exploring electrode has a fundamental effect on the recorded pattern. It is attempted, therefore, that every area of the myocardium is explored. This is practically the case when AVR, AVL and AVF and the six usual precordial leads V_1 to V_6 are taken. These leads are placed as follows: V_1 is on the fourth intercostal space to the right of the sternal border; V_2 in the fourth intercostal space to the left of the sternal border; V_3 is between V_2 and V_4 which is in the fifth intercostal space at the mid-clavicular line; V_5 and V_6 are in a line horizontal to V_4 on the anterior axillary line and mid-axillary line respectively. However, at times the cardiologist may want a "close-up" view of the high lateral aspect of the heart through leads above V_4, V_5 and V_6, or he may want to more closely examine the posterior aspect of the heart through esophageal leads. The occasion to use these leads is

unusual, but they do serve to illustrate the principles of unipolar electrocardiography.

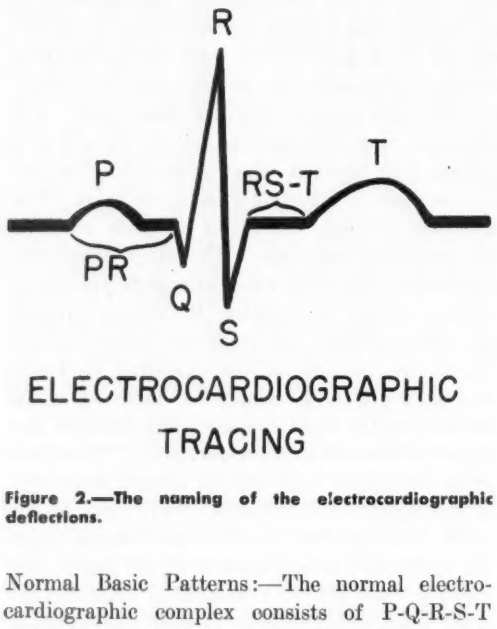


Figure 2.—The naming of the electrocardiographic deflections.

Normal Basic Patterns:—The normal electrocardiographic complex consists of P-Q-R-S-T and occasionally U waves (See Figure 2). The impulse of stimulation is initiated at the sino-auricular node, the pace-maker, and spreads throughout the auricular myocardium (See Figure 3). This portion of electrical activity in the auricles forms the P wave. The impulse is then picked up by the atrio-ventricular node which is located in the junctional tissue between the auricles and ventricles. The impulse then passes down a short common bundle located in the upper portion of the septum which soon splits into right and left bundle branches. The septal myocardium is normally depolarized from the left side to the right. When the bundles reach the free ventricular walls, they arborize in the subendocardial myocardium, forming the Purkinje system. Finally the impulses spread from the subendocardial Purkinje fibers peripherally through the myocardium to the epicardial surface. This electrical activity through the septum and ventricle forms the QRS complex, the Q being the initial downward deflection, R the initial upward deflection and S the downward deflection following the R. So far, only depolarization waves have been described. This repolarization wave of the auricle may be a small negative wave following the P and it is often lost in the QRS complex. The repolarization of the ventricles is of great importance. The T wave is the wave of ventricular repolarization. It would be expected that since this is the opposite process of depolarization the T wave would be in a direction opposite to the QRS complex. This would be true, if, as might be expected, repolarization spread from the endocardium to the epicardial surface, as is the order of depolarization. However, for reasons yet not fully understood, the repolarization process spreads from the epicardial surface to the endocardial surface. Therefore, the T wave observed in leads facing the epicardium is normally upright.

There are three normal basic patterns that are factors in the makeup of any normal electrocardiographic tracing: (1) left ventricular pattern, (2) right ventricular pattern, (3) endocardial patterns (See Figure 3). It has been mentioned above that polarized areas of myocardium are of positive charge in relation to the oncoming depolarization wave of stimulation. This positivity is recorded on the electrocardio-

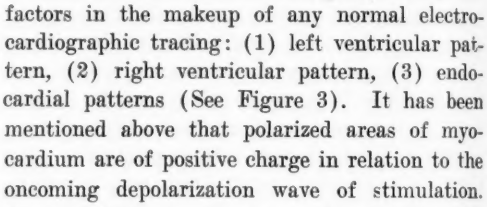


Figure 3.—Normal conduction starting at the SA node extending through the auricles to the AV node, down the common bundle, through the bundle branches and finally in the Purkinje system which is located in the subendocardial myocardium. Note that the myocardium of the septum is depolarized from left to right and depolarization of the ventricular myocardium at any one spot extends from the endocardium to the epicardium. The three basic patterns are illustrated as seen in leads facing the left epicardium (for example, V_5 and V_6), the right epicardium (for example V_1 and V_2), and endocardium (for example aVR).

gram as deflection above the isoelectric base-line producing upright waves. On the other hand, if the positivity is in a direction away from the electrode the tracing will show a downward deflection or a negative wave.

The myocardium of the left ventricle is the thickest portion of myocardium. As depolarization spreads in the ventricles from endocardium to epicardium, the left ventricle because of its thickness exhibits a greater positive charge than the right ventricle. An electrode placed so that it "focuses" on the left ventricular epicardium may show an initial small Q wave since it also faces the septum which is depolarized from left to right. Following the Q it will show a strong upward deflection or, in other words, an upright "R" pattern. Also, the T wave is upright and, since the point of focus is below the S-A node, the P wave is upright. This pattern is usually seen in V_4 to V_6.

On the other hand the right ventricle, having a thin myocardium exerts a lesser positive charge. An electrode placed so as to focus mainly on the right ventricular epicardium will be influenced by the greater positivity of the left ventricle but in a direction away from the electrode. Its resulting pattern will be a downward deflection, or mainly an S pattern. Preceding this S wave, there may be a small R due to a combination of septal depolarization from left to right and early right ventricular activation. The P is upright since the electrode faces the oncoming impulse from below the S-A node and the T is upright. The pattern of the right ventricular epicardium is therefore an upright P wave, a small R wave followed by a deep S wave and an upright T wave. This pattern is usually found in V_1 and V_2.

The endocardial pattern is found in AVR. This is to be expected since an electrode focusing upon the heart from the right shoulder would be looking inside the ventricles. All electrical activity is in a direction away from the electrode resulting in a pattern of inverted P wave, inverted QS wave and inverted T wave. This pattern may also be found in right precordial leads including V_1.

A septal pattern is a combination of right and left ventricular patterns with a moderately high R wave and a moderately deep S wave usually found in V_2 to V_4.

It is from the above basic patterns that the electrical positions of the heart can be estimated. Though it is not within the scope of this paper to discuss those positions in detail, the following examples will illustrate the principle involved. If AVL shows a definite left ventricular pattern, that is, resembles V_5 and V_6, and AVF shows a definite right ventricular pattern or resembles V_1 and V_2, one could conclude that the major portion of the left ventricle is facing the left shoulder. This would indicate a horizontally placed heart. On the other hand, AVL resembling AVR in showing an endocardial pattern would indicate a markedly vertical heart. In general, the heart positions are influenced by rotation on its three axes: the anteroposterior axis, the longitudinal axis, and the axis through the heart laterally. Positions of rotation in the antero-posterior axis are described as horizontal, semi-horizontal, intermediate, semi-vertical, vertical and, when no definite position is apparent, indeterminate. Rotation in the longitudinal axis is clockwise or counter-clockwise as viewed (with the face of the clock pointing downward) from the inferior aspect of the heart. Thus, clockwise rotation would move the right ventricle into a more anterior position with the left ventricle moving from a lateral to a more posterior position. The right ventricular pattern then appears over to V_4 or V_5. Counter clockwise rotation is opposite with the left ventricle moving anterior and its pattern starting in V_2-V_4. Rotation in the lateral axis is described as forward and backward movement of the apex. Position on these axes form in usual combinations. For instance, a heart that is horizontal is usually also counter-clockwise. Position is always diagnosed by noting which basic pattern or combination of basic patterns is facing each of the unipolar leads.

As is illustrated in the above examples, the basic patterns are made workable. Although the practical value of knowning positions may not be readily apparent, suffice it to say, that knowledge of an unusual position of the heart may explain a normal deviation such as a fairly prominent Q wave or an inverted T wave that might otherwise have been considered pathological.

Effect of Pathology on Pattern.—The myocardium may suffer pathology that can generally be classified as anoxia, injury, necrosis or a combination of these. These may be caused by a

compromised blood supply as in hypertrophy and coronary occlusion, by drugs such as quinidine, digitalis, by external toxins as chloroform, and by abnormal bio-chemical deviations such as abnormal blood potassium, calcium, etc.

Anoxia causes only changes in T wave direction (See Figure 4). As has been described above, the normal repolarization process spreads from the epicardium to the endocardium resulting in an upright T wave. In the presence of subepicardial anoxia, the repolarization will tend to be initiated in the subendocardial region resulting in a blunted or inverted T wave. On the other hand, and less frequent, should the subendocardial myocardium suffer anoxia, the T waves would increase in voltage.

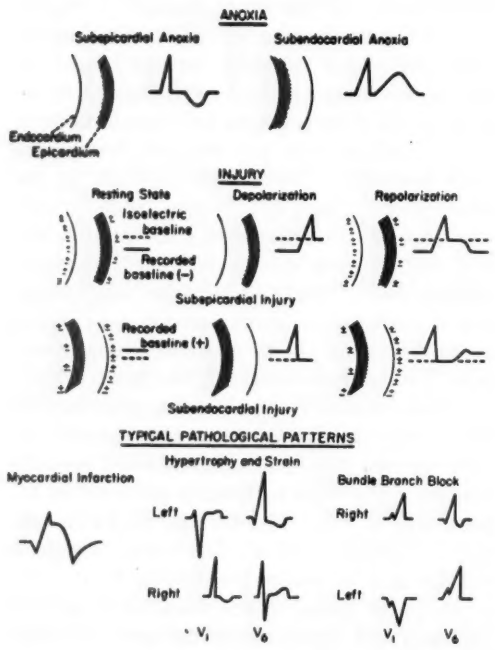


Figure 4.—Pathologic changes are represented. The top illustrates anoxia. Subepicardial anoxia delays subepicardial repolarization allowing this process to start abnormally in the endocardial area resulting in an inverted T wave. Subendocardial anoxia delays repolarization in this area, emphasizing the normal T wave. Subepicardial injury, illustrated in line 2, is characterized by partial depolarization and thus relative negativity of tissue closest to the epicardial lead. This results in the recorded baseline, during the resting state, being deviated downward. This accounts for the apparently elevated RST segment immediately after depolarization, at which time, no charge exists and the electrocardiograph records on the isoelectric baseline. Subendocardial injury, illustrated in line 3, is the exact counterpart of this process. The bottom illustration represents three pathological entities. Myocardial infarction pattern is characterized by a deep wide Q wave which is the result of an "electrical window" in the myocardium, through which the endocardial pattern is recorded. The RST-T changes are as explained in the text. The next two illustrations show typical right and left ventricular hypertrophy, and strain, and right and left bundle branch block as seen in left epicardial leads (represented by V_6) and right epicardial leads (represented by V_1).

Injury causes RS-T segment deviation (See Figure 4). In the case of injury the myocardium is in a state of partial depolarization. The subepicardial myocardium is involved in injury as seen in infarctions and in pericarditis. In such a case the epicardium, being partially depolarized is negative in relation to the endocardium. Consequently, in the resting state the base line of the electrocardiographic pattern is depressed below the normal isoelectric base line. Then, following complete depolarization, that is, following the QRS pattern, at which time no electrical activity exists, the RS-T segment is located on the isoelectric line above the pathologically depressed base line. The RS-T segment, therefore, appears elevated in subepicardial injury. The reverse is true in subendocardial injury, that is, the RS-T segment is depressed in relation to an abnormally elevated base line.

Necrosis of the myocardium is recorded in the electrocardiogram as an abnormal Q wave. A necrotic mass of myocardium is obviously incapable of transmission of any electrical impulse. A necrotic area is therefore an electrical "window" and would record the electrical pattern that it sees through the "window". This would be the endocardial pattern of the ventricles, a negative wave, the Q wave. Whether or not it is a pure Q wave or a QR pattern would depend upon whether the electrode is focused only upon electrically inert necrotic tissue or upon this tissue plus surrounding active tissue. From the above discussion it can be construed that for the necrotic tissue to act as a "window" and produce a Q wave it must be transmural or nearly transmural. If the necrotic tissue is only a small mass within the wall a Q wave will not be produced. It was mentioned at the outset of this discussion on necrosis that this condition is characterized by an abnormal Q wave. This would imply that Q waves may be within normal limits. Such is often the case. If a Q wave is at least 0.04 seconds in duration and at least 25% of the QRS pattern amplitude in the leads where it is present, it is considered certainly abnormal. However, an abnormal Q wave may not measure up to all these

qualifications in which case the remainder of the pattern, that is, RS-T segment and T wave abnormalities may help indicate definite pathology. The diagnosis of a normal Q wave is sometimes difficult. One of the more common normal Q waves is the "septal Q". As has been noted before under the discussion of normal conduction of the stimulating impulse through the heart, in the septum, the electrical impulse passes from the left to the right side of the septum. If an electrode is so placed that it faces directly the left side of the septum, this impulse passing from left to right or in a direction away from the electrode would be recorded as a Q wave. This is the mechanism of the "septal Q". Other reasons for normal Q waves have been suggested such as more rapid depolarization in sections of myocardium away from that section facing the electrode. An isolated Q wave in bipolar lead III is of little significance. Its explanation is more involved. The depolarization of the myocardium facing the left shoulder is recorded in lead III in a negative direction. Often the rate of depolarization in this area is rapid and its early onset will record in lead III as a Q wave. The above discussions would indicate that whether or not a Q wave is significant may present much of a problem. Conclusions can often be reached only after careful consideration of such factors as position and presence or absence of other abnormalities.

Pathological Entities:—Pathological entities as diagnosed from the electrocardiogram are myocardial infarction, myocardial strain and hypertrophy, bundle branch block, pericarditis, pulmonary infarction, the effects of drugs, chemicals and abnormal activity and arrhythmias. In most of these cases, the specific pattern is one or a combination of patterns described in the previous section on fundamental pathological patterns.

Myocardial infarction has often been called the "raison d'etre" of the electrocardiogram (See Figure 4). The diagnosis of this condition is its most important contribution. A myocardial infarct consist of a core-like necrotic area, usually practically transmural, surrounded by zone of injury and finally a zone of ischemia or anoxia. The latter two zones are usually wider in the epicardial area. The necrotic zone produces a Q wave. The zone of injury mainly epicardial, produces an elevated RS-T segment, and the zone of anoxia, mainly epicardial, produces an inverted T wave. Thus, the typical infarction pattern consists of a Q wave, an elevated RS-T segment and an inverted T wave. The T wave is typically round-shouldered, sharp and symmetrical. Often the inverted T wave does not occur until the elevated RS-T segment is dropping toward normal indicating that some of the zone of injury is becoming merely anoxic. This pattern usually appears in isolated groups of leads depending upon the position of the infarct. If it records most plainly on V_2 to V_4 an anteroseptal infarct is indicated; V_5, V_6 and AVL indicates lateral; AVF indicates posterior infarction; combinations of the above would indicate anterolateral, posterolateral and sometimes ateroposterior infarction. Posterior myocardial infarction may sometimes be definitely indicated only in AVF. Lateral infarctions may be seen only in AVL in which case more information may be obtained from precordial leads above V_4, V_5, and V_6. Infarctions may be atypical in that the marginal injury is subendocardial rather than subepicardial. In such a case, as would be expected, the ST deviation is downward rather than upward. Also atypical is the small intramural infarction that does not produce a Q wave. In all infarctions the sequence of appearance of electrocardiographic changes is variable and when recent myocardial infarction is suspected serial electrocardiograms are usually imperative.

As has been stated above, uncomplicated angina pectoris may show no electrocardiographic abnormalities. However, the electrocardiogram may be of aid in the diagnosis in that during exercise, patients with angina pectoris suffer myocardial anoxia which would appear as T wave damage. This is the basis of exercise tests for angina pectoris.

Pericarditis consists of subepicardial injury and ischemia that usually is diffuse. Early in the disease there is elevation of the RS-T segments in most of the epicardial leads. The RS-T segments return to normal and the T waves become inverted. There is often low voltage because of pericardial fluid or because of thickened pericardium. If the pericarditis is localized, the pattern will appear only in leads facing that area. Unlike the pattern in myocardial infarction, there is usually no reciprocal pattern in pericarditis. The reciprocal pattern is a mirror image of the infarction pattern in leads facing

that aspect of the heart opposite the lesion. Significant Q waves are commonly found in cases of myocardial infarction whereas in uncomplicated pericarditis abnormal Q waves are practically never found.

Before continuing with ventricular hypertrophy and bundle branch block, the term "intrinsicoid deflection" should be understood. The intrinsicoid deflection refers to the downstroke beginning at the peak or possibly just beyond the peak (nadir) of the R wave. This "onset of the intrinsicoid deflection" is important because it designates the moment that electrical activity in the underlying myocardium has completed its course at the epicardial surface. The time of the onset of the intrinsicoid deflection is the interval between the beginning of the QRS complex and the onset of the intrinsicoid deflection. This interval obviously is a measure of the time elapsed between the beginning of septal depolarization and the completion of the impulse at the epicardial surface. This interval is usually 0.02 or 0.03 seconds in leads facing right ventricular epicardium and up to 0.05 seconds in leads facing left ventricular epicardium.

Ventricular hypertrophy (See Figure 4) and ventricular strain have been described as isolated findings or in combination, hypertrophy referring only to the QRS change and strain to the ST-T changes. However, these findings are usually in combination as part of a single picture and heretofore will be spoken of only as hypertrophy. Left ventricular hypertrophy is characterized by the following findings: (1) There is increased voltage of the R wave in leads facing the left ventricular epicardium (V_5, V_6, usually AVL and lead I). This is the result of an increased electrical potential in the thickened myocardium. It must be borne in mind that voltage changes can be affected also by extra-myocardial factors such as pleural effusion, obesity, etc. (2) The onset of the intrinsicoid deflection is increased to more than 0.05 seconds in the left epicardial leads as a result of the greater time required to depolarize the thickened left ventricular myocardium. (3) The typical RS-T segment and T wave changes occur in left ventricular epicardial leads. These consist of blunting and finally inversion of the T wave with the wave retaining its asymmetrical contour. The RS-T segment tends toward negativity and finally is depressed with the typical "roller-coaster" contour. (3) The mirror image of the above described pattern appears in leads facing the right ventricle, (V_1, V_2, usually AVF and lead III), that is a deep S wave, the RS-T segment tends to be elevated and the T wave is positive. (4) Because of enlargement of the left ventricle, the heart commonly assumes a horizontal position with counter-clockwise rotation.

Right ventricular hypertrophy likewise shows similar changes but in opposite leads. (1) In leads facing the right ventricular epicardial surface (V_1, V_2), usually AVF and lead III). There is increased voltage of the R wave, a delayed onset of the intrinsicoid deflection to beyond 0.03 seconds, RS-T segment depression and T wave inversion. Occasionally the changes are only suggestive in these leads and a more typical pattern may sometimes be obtained in V_3R or V_4R (the same positions as V_3 and V_4 but on the right side of the chest.) (2) In leads facing the left ventricular epicardial surface there is an exaggerated S wave, the RS-T segment tends to be elevated and the T wave is positive. (3) Because of right ventricular enlargement, the heart usually undergoes clockwise rotation.

The effect of digitalis upon the electrocardiogram is the most important of changes due to drugs. There is inversion of the T wave in leads with upright QRS pattern. The RS-T segment becomes diagonal producing a check mark appearance. Later, there is a prolongation of the PR interval or first degree heart block. The Q-T interval, from the beginning of the Q wave to the end of the T wave, is shortened. Later, ventricular extrasystoles appear and a bigeminy rhythm consisting of the repeated sequence of a normal beat followed by a ventricular premature contraction. Further changes are complete heart block and an increasing number of aberrant ventricular beats. Quinidine may cause blunting and inversion of the T waves. The QT interval may become prolonged. Conduction defects such as prolonged PR interval, sinus arrest and intraventricular conduction defects may also occur.

Hyperpotassemia is recorded on the electrocardiogram as tall, narrow, peaked T waves. In toxic levels the QRS complex becomes widened, P waves disappear and the T waves are large and abnormal. Hypopotassemia, conversely is recorded as small or inverted T waves. Also the Q-T interval becomes prolonged.

Calcium changes also effect the electrocardiogram. Characteristically, hypocalcemia causes a prolonged Q-T interval with the major lengthening occurring in the RS-T segment. Hypercalcemia usually causes the reverse, a shortened QT interval.

Bundle branch block (See Figure 4) is a condition in which a normally initiated impulse is blocked in its passage through the right or left bundle branch. Such cases are characterized by a normal PR interval designating normal initiation of the impulse and normal passage to the A-V node, that is followed by a wide QRS pattern (0.12 seconds or more) designating delayed conduction below the A-V node. Thus, in left bundle branch block, the impulse passes normally from the S-A node to the A-V node. There is Conduction down the common bundle but at the left bundle branch, the impulse is blocked and must pass only down the right bundle. Consequently, the septum is depolarized abnormally from right to left. Since conduction through the right bundle is normal the right ventricle is normally depolarized. In the meantime, the impulse passes over to the left side below the block through a devious route and the left ventricle is finally depolarized after a delay. Electrocardiographically, the pattern would appear as follows. Because of normal auricular conduction there is a normal P wave and a normal P-R interval. In leads facing the right epicardial surface (V_1, V_2), there may be a small initial negative deflection because of septal depolarization abnormally from right to left, or away from the electrode. The right ventricle then is normally depolarized resulting in a small narrow upright deflection. Finally, the left ventricular depolarization is recorded in this lead as a deep S wave as it is in a direction away from the electrode. It should be noted that in leads facing the right ventricular epicardium in left bundle branch block, the onset of the intrinsicoid deflection is normal. In leads facing the left ventricle (V_5, V_6), there is an initial upward deflection resulting from the abnormal septal right to left depolarization. (The normal septal Q wave is never present in left bundle branch block.) Then, there is a small negative deflection as the right ventricle is depolarized which is followed finally by a high second upright deflection of left ventricular depolarization. The onset of the intrinsicoid deflection in such a lead is markedly delayed (0.07 to 0.08 second). In the unipolar limb leads AVL usually resembles V_5 and V_6. The QRS in AVR is wide and usually uniformly negative. In summary, left bundle branch block is characterized by: (1) normal P wave and PR interval; (2) a QRS of 0.12 second or more; (3) an early peak of the R wave (onset of the intrinsicoid deflection) in leads facing the right epicardium and a delayed attainment of the peak (intrinsicoid onset) in left ventricular leads; (4) an initial upright deflection in left ventricular leads, never a Q wave, signifying abnormal septal conduction.

Right bundle branch block is practically an exact counter-part of the left bundle branch block. There is a normal P wave and PR interval as auricular conduction is unaffected. As the impulse passes down the left bundle alone, the septum is depolarized from left to right. This records in leads facing the right epicardium (V_1, V_2) as an initial upright deflection. The downward deflection that follows is a result of normal left ventricular depolarization (in a direction away from the electrode). Finally, the right ventricle is depolarized causing a final prominent upright deflection. The onset of the intrinsicoid deflection is thus delayed in leads facing the right ventricular epicardium. In leads facing the left ventricular epicardium, there is an initial Q wave as the septum is normally depolarized. The left ventricle is then depolarized causing a normal R. Finally, a delayed blunt S wave is recorded as the right ventricle is activated. As should be noted, the onset of the intrinsicoid deflection is normal in such a lead. In right bundle branch block, AVR is of importance in that its broad upright R indicating abnormal right ventricular activation is practically pathognomonic.

Incomplete bundle branch block is characterized by patterns similar to those described but the QRS interval does not exceed 0.12 second.

Combinations of several of the above described pathological entities may occur in various clinical syndromes. Pulmonary embolism causes myocardial anoxia with its accompanying electrocardiographic pattern. Also, clinically associated with pulmonary embolism is acute right ventricular dilatation which in turn causes the heart to assume a vertical, clockwise position. Right ventricular strain pattern may occur and be-

cause of the positional changes a Q wave may appear in AVF. In such a case, differentiation from a posterior myocardial infarction pattern may be difficult.

Syndromes resulting from electrolyte changes may be reflected in the electrocardiogram. Thus, in uremia the combined patterns of hyperpotassemia, which is often present, and hypocalcemia are recorded. In some cases hypopotassemia is present. In Addison's disease, the pattern of hyperpotassemia characterizes the electrocardiogram. Diabetic acidosis may show the pattern of hypopotassemia. Certain calcium changes will be recorded in parathyroid disturbances and in metastatic bone diseases.

Myxedema, thiamin deficiency heart, as well as a host of other diseases including diphtheria, scarlet fever, pneumonia, trichinosis, cause T wave changes, the mechanism of which is not clearly understood. In myxedema there is low voltage probably a result of fluid accumulation in the skin and subcutaneous tissue.

The electrocardiogram is a useful aid in the diagnosis of specific congenital heart disease in that the changes in various chambers, position, strain, hypertrophy, etc., can be recorded.

In conclusion the purpose of this article is to emphasize: (1) the value of the modern electrocardiogram; (2) that the advent of the unipolar leads have added considerable clarity to the understanding and diagnostic use of the electrocardiogram; (3) the responsibility of the clinical correlation of the electrocardiogram rests primarily upon the practicing physician and therefore it is urged that at least the basic principles of the electrocardiogram be understood in order that the cardiac and non-cardiac patient receives adequate management; (4) that the proper use of the electrocardiogram is an exact diagnostic procedure.

REFERENCES

Ashman, R., and Hill, E.: Essentials of Electrocardiography. The Macmillan Company, 1941.

Goldberger, E.: A Simple Indifferent Electrocardiographic Electrode of Zero Potential and a Technique of Obtaining Augmented Unipolar Extremity Leads. Am. Heart J. 23: 483-492 April, 1942.

Hecht, H. H.: Basic Principles of Electrocardiography. Charles C. Thomas, 1950.

Myers, G. B., Klein, H. A., Stafer, B. E., and Hiratzka, T. Normal Variations in Multiple Precordial Leads, Am. Heart J. 34: 785-808, Dec. 1947.

Myers, G. B. I. The Form of the QRS Complex in the Normal Precordial Electrocardiogram and in Ventricular Hypertrophy. Am. Heart J. 39: 637-649, May, 1950.

Myers, G. B. II. The Form of the QRS Complex in Bundle Branch Block and in Anterolateral Infarctions. Am. Heart J., 39: 817-827, June 1950.

Wilson, F. N., Johnston, F. D., Rosenbaum, F. F., Erlanger, H., Hecht, H. H., Cotrin, N., Menenzes de Oliveira, R., Scarsi, R., and Baker, P. S. The Precordial Electrocardiogram. Am. Heart J., 27: 19-85. Jan. 1944.

Wilson, F. N. Rosenbaum, F. F., and Johnston, F. D., Interpretation of the Ventricular Complex of the Electrocardiogram. Advances in Internal Medicine, Interscience Publishers, 2: 1-63. 1947.

Revised Mental Health Act (Continued)

certificate be presented to the hospital superintendent within forty-eight hours of the medical examination.

With the above requirements in mind, it is advisable that the examining physician recommend to the interested parties that they contact either their local County Judge or the State's Attorney in order that the necessary legal steps be taken before the patient is presented to the hospital superintendent for examination and/or detention.

Any violation of the Mental Health Act, including the physician's failure to make the examination personally *on the date of certification,* exposes the doctor to a fine or imprisonment, or both, or to a civil action for false arrest, false imprisonment or libel. As in other matters, ignorance of the law is no excuse, and knowledge of the law is presumed.

Birth Marks

Harry M. Hedge, B.A., M.S., M.D., F.A.C.P.
Chicago

In presenting a paper on birth marks one must be brief and some of the interesting materials will then of necessity be omitted.

There is much misunderstanding regarding the cause of birth marks, the possibility of their successful treatment and the safety with which they may be removed. Even by such authoritative persons as administrators of some of the large hospitals has the statement been made that to remove a birth mark may lead to insanity or at least a serious psychosis and that in many instances such removal may result in the development of malignancy later in life. Among the laity there are many household beliefs that have existed for generations, such as the results of some strong impression, fear or shock experienced by the mother during the period of intrauterine life. There is, of course, no scientific basis for this belief but some cases furnish good evidence for the initial foundations for such conclusions and it might be interesting to give two examples:

(1) A woman who was very easily frightened by spiders was shocked during one of her pregnancies to the extent that she was sure that her baby would show a birth mark. This shock came from a brother who returned home one night with one of those artificial spiders which had coil springs for legs and was suspended upon a string which was attached to a stick. The brother came home to find his sister sewing in the living room. He quietly slipped up behind her and lowered this spider as if it were descending on its web so that it rested about six inches in front of the right side of her forehead. The experience was so real and she was so frightened that she insisted that the mark would be upon her soon-to-be-born child. When the baby did arrive, it presented a hemangioma not unlike the body of the spider with six projecting lines similar to legs on the side and the spot resembled in many characteristics the arachnid which produced the scare. In such a case as this it is difficult for the doctor to convince the patient that the incidence was merely accidental.

(2) A woman in moderate financial circumstances was very anxious to possess a sealskin fur jacket. Feeling that the purchase was almost prohibitive she began to save her money a little at a time, taking it from the household food allowance. Apparently she made a frequent practice of counting the money during her husband's absence. She had saved something in the neighborhood of $146 which she kept in a secret place in the china closet in the kitchen after she had counted it at the kitchen table. She thinks a burglar had been peering through a crack under the kitchen curtain because he broke into the house one night and demanded the money. The woman insisted she had no such roll of bills but after considerable torture with lighted cigarettes and otherwise, she admitted having the amount hidden away in the kitchen. The burglar went to the spot, located the money and, flashing the bills in the face of both this woman and her husband, left in a joyous mood. The woman fainted from the shock and, after being revived, insisted that her offspring would surely show signs of the unhappy event. When the child was born he presented an enormous, heavy nevus, pigmented and covered with dark hairs which covered the body from the neck to the buttocks with short extensions down both upper arms like the puffed sleeves of the jacket she had so coveted. Again such an incidence as this is difficult to explain except on the basis believed by the non-medical housewife.

However, if impressions such as these were to cause birth marks, then we would expect that from the recent period of war and from our everyday experience with automobile collisions and airplane wrecks we would have birth marks resembling airplane wings, automobile radiators and wheels and innumerable other characteristic patterns.

Upon asking Dr. William Allen Pusey — the dean of dermatologists in Chicago — what he

President, Illinois State Medical Society; Assistant Professor of Dermatology, Northwestern University Medical School.

thought might be the cause of birth marks, he replied, "My only belief is that it is a group of cells gone crazy and tissues that are not built according to specifications."

Let us now discuss the classifications under which birth marks should be considered: (1) Nevus pigmentosus or the ordinary pigmented mole; (2) nevus pilosus or those which contain hair and usually also some pigment; (3) nevus verrucosus which resembles a group of warts; (4) linear nevus made up of wart-like projections which often form in a line either straight or curved; (5) cerebelliform mole which resembles a portion of brain tissue projecting from the skull, both in color and texture; (6) vascular nevi, the first of which is the portwine mark or that nevus which is made up of very small blood vessels and usually lies flush with the surface of the skin. Then there is the nevus cavernosus made up of larger blood vessels or lymph vessels which usually project somewhat above the surface of the skin and is a bright red or purplish-red if made up of blood vessels and, if made up of lymph vessels, is soft and circumcribed but usually of the normal color of the skin. (7) Follicular nevi which are very rare and resemble a group of small blackheads in linear arrangement or groups.

Nevi may be seen on any part of the body and even in such locations as on the eyeball. One such case was seen by the author which began on the lower inner quadrant of the orbit and was making quite rapid growth until it had partially covered the iris. In all probability it would eventually have extended over the entire pupil, causing either complete or partial blindness. However, the portion of the sclera containing the nevus was removed surgically, the parts were sutured and healing was rapid.

Probably the most important factor in treatment of birth marks is selection of the method of treatment. In some the use of carbon dioxide snow pencil is all that is necessary. The pencil is made from snow collected in a chamois skin from the ordinary carbon dioxide tank used in every community for refrigerating the fountain drinks in drug stores. The snow is collected and pressed into a hollow tube until the pressed material resembles an ordinary piece of school chalk. This is then held with a small piece of chamois skin to avoid freezing the operator's fingers. It can be molded on a small toy iron to a shape closely resembling that of the nevus. It is then pressed against the nevus for a period ranging from 5 to 20 seconds, according to the tissues which underlie the deformity. The harder the tissue — as for instance on the forehead — the shorter the exposure and the softer the tissue — as for instance on the neck or cheek — the longer the exposure. This treatment causes a blister to form in about six to eight hours. The blister usually breaks on the second or third day and a crust is formed which remains in place for about a week. The crust then loosens and falls off to leave a small red spot the size of the frozen area which gradually fades out, leaving what appears to be a white scar. As time goes on, the pigment gradually grows in from the border of this scar until after a period of six weeks to two months almost no scar is discernible. This type of treatment is particularly applicable to pigmented nevus, hemangioma cavernosus and to small spider nevi which are made up of a central venule with fine radiating capillaries resembling a small red spider. When the spider nevus is treated, it is necessary only to freeze the central venule which supplies the small capillaries and they rapidly collapse.

In portwine marks if carbon dioxide pencil is used, there is great danger of leaving a mottled checkerboard appearance on the skin and so we employ a different method. Taking the carbon dioxide snow as it is recovered in the chamois skin from the tank, it is placed in a glass beaker with a glass stirring rod. A few drops of acetone are added at a time until the snow assumes the appearance of slush such as we see in the streets in the springtime. This is then collected on an ordinary cotton applicator on a stick and rapidly painted over the entire area involved in the portwine mark. If the mark is a very deep purple, it may be well to paint the area two or three times. And if the mark is very large, it is well to select a small part of it at a time for treatment and after that portion heals, treat the adjacent portion and it will be seen that if conservatively handled, almost no scarring will result.

Another method of treatment frequently used is that of the electric cautery, which is of particular value in treating spider nevus or small hemangioma, especially those little red spots seen so frequently on people of advancing years. The cautery will remove those spots, usually at one sitting and with very little pain and no in-

convenience to the patient. After the area has been treated with the electric cautery, the patient may bathe and wash the area with soap and water as usual, being careful not to remove the crusts before they are ready to come away easily.

Certain large hemangiomata which protrude high above the surface of the skin and whether they be of blood vessel or lymph vessel origin, usually respond well if they are first treated with radium filtered with .1 mm. aluminum. If the hemangioma extends deeply into the skin, a thick cork or wood filter should be placed between the radium and the lesion. It is much better to treat these disfigurements a large number of times rather than trying to accomplish too much at one sitting.

In any of the cases where small telangiectatic blood vessels remain in the scar tissue, it is well to touch these at their heavier end with the electric cautery so that they may be eliminated entirely from the picture.

In a few selected cases electrolysis may be employed by inserting the electrolysis needle into the lumen of the blood vessel, allowing it to remain for several seconds which usually cause the collapse of the vessel and healing of the nevus.

The only type of nevus that causes great concern to the experienced dermatologist is the melanoma. This lesion is extremely malignant and should be removed widely and x-rays should be given to the base before closure of the wound. If the melanoma measures 1 cm. in diameter, an elliptical incision should be made by the electrocautery knife, avoiding the edges of the melanoma by at least 0.5 cm., and the entire skin and subdermal tissue should be removed in one piece before x-ray is given. The wound can then be closed. In a large number of these cases seen by the author there has been no recurrence for a period of over five years.

There is no reason why birth marks in any location or of any type cannot be removed satisfactorily if they are entrusted to one who has had experience in their removal. The feeling that dire results may be suffered is groundless and there is no reason to fear any mental or psychologic change as a result of their removal. Since this is a field in which the patient suffers great mental agony in carrying with him through life many of the disfigurements which have been suffered in the past, I feel that removal of birth marks and proper advice to patients suffering from them is a very important medical problem.

The American Trudeau Society, medical section of the National Tuberculosis Association, has approved the administration of BCG vaccine to nurses, physicans and hospital attendants, who have negative tuberculin tests, because these individuals are almost constantly exposed to tuberculous infection from known and unknown tuberculous patients. It also approves BCG for (1) the Indians, (2) inmates and attendants in institutions for mental patients, and (3) in slum areas in certain large cities where proper housing and living conditions have not as yet been achieved. For the same reason it is justified as a temporary expedient in some countries where the tuberculosis death rate is high and facilities for isolation and treatment almost non-existent. The approval of the Trudeau Society for the use of BCG under these conditions was given with the full knowledge that only slight protection would be achieved and in no sense as a substitute for an adequate program of case finding, isolation, and treatment. *The NTA Bull.*, David T. Smith, M.D., March, 1951.

Polyps of the Large Bowel and Their Management

Raymond W. McNealy M.D. and Francis D. Wolfe M.D.
Chicago

In a review of the subject of polyps of the large intestine it is found that the literature is confusing. The word polypus is derived from the Greek and means many footed. The polyp of zoology is an animal with many feet; the octopus is a typical polyp.

The pathological lesions which we call polyps have taken their name in all probability from their resemblance in conformation to the octopus. The use of this term which has the implication of form alone has led to the inclusion of innumerable pathological conditions under the heading of polyp.

The mucous membrane of the large intestine is a velvety, vascular tissue and normally disposed in polymorphous folds and crypts. Localized hypertrophy, hyperplasia or redundancy may give rise to polypoid formation.

In patients who have no history of previous bowel disturbance a careful examination proctologically and roentgenologically, will reveal the astonishing fact that more than ten percent of patients past middle life have polyps in their large intestine. In most of these patients the polyps are small in number and surrounded by apparently normal mucous membrane. They may vary in size from those barely distinguishable to others which may offer obstructive symptoms by their obturation of the bowel lumen.

For purposes of study a classification of polyps may be based upon the etiological, pathological and clinical features which predominate in a given case. A frequently met type is the inflammatory polyp. Simple, single or even multiple polyps in localized areas are not uncommon following any chronic inflammatory lesion involving the mucous membrane. Polypoid lesions are common around the internal openings of fistulas of the large intestine and a case has been reported by Dixon in which polyps of the colon developed following bilateral ureterosigmoidostomy. It has been noted also that when inflammatory activity ceases or the cause is removed the polyps tend to atrophy or even disappear from the former polyp bearing areas. Multiple polyps are prone to follow in the wake of ulcerative colitis. It is interesting to record that malignant degeneration of polyps engrafted upon the chronic lesions of ulcerating colitis is not uncommon. Chronic inflammatory lesions may develop polyps which may have a very wide distribution. The term polyposis has been used rather loosely and is applied to a group of pathological entities whose principal characteristic is the occurrence of multiple polyps in the intestinal tract.

Lockhart-Mummery described a condition which he termed multiple adenomatosis. This condition is characterized by polypoid masses which spring from the mucous membrane with diffuse hyperplasia and widespread lymphatic infiltration. The diffuse or solitary lymph follicles are usually enlarged and hyperplastic. This particular type of polyposis shows a rather striking tendency to be hereditary and to undergo malignant change in a large number of its victims. In most of these patients the polyps are discrete and while they may vary greatly in size, shape and number, they are usually separated by areas of normal mucous membrane.

Less commonly a type of polyposis may occur in which the polyps tend to be multiple and the mucous membrane between them show pathologic changes of various types and degrees. The entire intestinal wall may be involved to a greater or lesser degree. Handley has suggested that in certain of these polypoid lesions the pathogenesis has its inception in the lymphatics of the submucosa. This concept is a valid basis for the suggestion that surgical or electrosurgical removal of polyps should include as much of the base as can be safely accomplished without danger of penetrating the entire bowel wall.

The symptoms of polyps in the intestinal tract are as varied as their causes. Many are asymptomatic and are discovered only on routine examination with the proctoscope or the x-ray. Even

careful x-ray study may not reveal the presence of single or multiple polyps unless the examiner makes use of the double contrast method. How long polyps can exist without giving rise to symptoms is, of course, impossible to state with any accuracy. That they may be present for years without the patient suffering any particular discomfort or ill effects is well established.

Bleeding is a rather common occurrence where the polyps are numerous or where they have reached a considerable size and are eroded as a result of their obstructive tendencies. The vascular polyps engrafted as they commonly are on inflammatory bases may give rise to repeated and sometimes profuse bleeding. The large polyps with pedicles may be so irritating by their presence that they cause excessive peristalsis. This in itself tends to elongate the pedicle of the polyp and in some instances, by traction on the bowel wall, may cause intussusception. One such patient in our service gave a history of repeated attacks of partial obstruction. When he came to surgery after several days of colic a complete obstruction was present. Exploration revealed a polyp at the apex of an intussusception which caused invagination of the cecum and several inches of the ascending colon. An insidious progressive anemia may be the first symptom of bleeding polyps. The patient may sometimes be unaware of the slow leakage of blood from the bowel. When the polypi are located beyond the transverse colon the patient is more apt to report the presence of frank blood in his stool. If the polyps are above the rectal area, the blood may be intimately mixed with the stool but when the polyps are in the rectum or pelvic sigmoid the stool may be coated with streaks of bright red blood.

Bowel irritability and hyperperistalsis is not uncommon. Patients with polyps may give a history of repeated attacks of intestinal cramps and diarrhea. Many of these patients are treated for colitis or spastic bowel. The passage of considerable quantities of mucous is not uncommon. In polyposis, the attacks of diarrhea are frequently accompanied by the passage of mucous, or mucous and blood. These patients are practically always sufferers from irregular bowel habit associated with more or less vague abdominal discomfort. Occasionally the attacks are so violent and the exacerbations of colic so acute that the diagnosis may be made of an emergency surgical abdomen.

The management of polyps is as diverse and lacking in uniformity as are the lesions themselves. It would serve us better to discuss the management of a classical example of the most common variety. In and about fistulous tracts and other localized inflammatory lesions we have indicated the necessity of first removing the causative lesions if possible. If the polyp does not disappear spontaneously it may be necessary to destroy it as we would other polyps not engrafted upon an inflammatory base. The most common problem met by the proctologist is the management of the isolated polyp discovered during the course of routine proctologic examination or found in the course of a barium enema study.

If the patient is a young person, the lesion is less likely to be a malignant one. However, if the patient is in the cancer age, it is exceedingly important to establish the character of the polyp. The single pedunculated polyp can be snared off and its base cauterized with little fear of accidental perforation or penetration of the bowel wall.

If the polyp is of large size or has a broad pedicle it is more difficult of management and is more likely to be malignant. There is the danger that in making traction on any polyp one may tent the bowel wall from which the polyp springs. During the act of snaring it off and cauterizing the base, a frank perforation may result. This is particularly true when one is dealing with a polyp which springs from the bowel at a level higher than the pelvic peritoneal reflection.

In the rectum proper the cauterization of large polyps may be followed by abscesses in the hollow of the sacrum. Less frequently fistulous communications are established with the vagina or bladder. When the polyps are above the level which can be reached safely with the sigmoidoscope a laparotomy may be necessary to permit excision of the polyp or sleeve resection of the polyp-bearing area.

Where the polyp is of large size, and particularly in patients past middle life, it is probably a safer procedure to do a sleeve resection, since a local excision may offer almost as much diffi-

culty and yet may leave tissue which is of doubtful malignant tendency.

When polyps are discovered in ulcerative colitis we do not believe that these can be treated by excision. If the ulcerative colitis has not been controlled it is safer to establish a permanent ileostomy and at a later date do a stage colectomy. This should include the rectum if it is involved.

In familial polyposis there is an inordinate tendency of the polyps to undergo malignant change. Some of these patients develop malignancy at a very early age. Occasionally a history of polyps in a parent may lead to the discovery of polyps early in the life of an offspring.

In these patients it may seem extremely radical to recommend so desperate a procedure as complete resection of the involved region or complete colectomy. However, in the light of our experience and that of others in this field it seems entirely justified.

There is an occasional case of familial polyposis in which the polyps may be confined to a single segment of the colon. In such instances it may be sufficient to do a sleeve resection of this involved segment. The remainder of the colon should be carefully palpated during the operation to be certain that no polyps remain elsewhere in the bowel.

Preoperative preparation. Whenever one contemplates any surgical procedure on the large bowel, whether it be the snaring of a single polyp with cauterization of the base, colostomy or colectomy, the patient and the bowel should each receive careful preoperative attention.

The patient is very likely to be anemic from occult or gross bleeding and may need multiple transfusions to restore his blood to a safe level. Hypoproteinemia is exceedingly common in surgical disease of the large bowel. The vitamin levels are prone to be disturbed by the restricted diets indulged in and by the loss of these from the body. Vitamin C particularly should be raised to a nearly normal level if one is to expect efficient tissue repair and wound healing. Reduction of the bacterial flora of the bowel can be accomplished by the administration of antibiotics.

Chemical and water balance of the body should be brought to as near normal as possible and the efficacy of the liver improved by diet and administration of glucose and amino acids.

Mechanical cleansing can be thoroughly accomplished by enemas and irrigations.

Summary. Polyps are common lesions of the large bowel and are present in more than ten percent of all individuals over fifty years of age. In dealing with a polyp or polyps one must make a searching study before one decides on the type of treatment to be instituted.

No surgical procedure should be attempted unless one has used every means at his disposal to establish the character and extent of the disease which he attempts to treat. Surgical procedures should not be instituted until the patient and the bowel have had adequate preoperative preparation.

We emphasize that 60,000,000 to 80,000,000 Americans, for one reason or another, annually consult physicians, and it has been demonstrated that the tuberculosis rate among these groups is higher than among the general population. For this reason, it is highly desirable that private physicians, including general practitioners, internists and specialists, obtain a chest X-ray film of every patient who consults them unless the results of a recent chest X-ray survey are available. New England J. Med., Robert B. Kerr, Frank G. Seldon, John D. Spring, November 30, 1950.

Prior to 1940 the tuberculin test was commonly used in case-finding surveys. Such surveys, however, yielded on the average only 2 cases of active tuberculosis for every 100 positive reactors to tuberculin. This low yield has brought the tuberculin test into disrepute for use in primary surveys, but does not in the least minimize the importance of testing with tuberculin those persons whose roentgenograms show suspicious shadows. Am. Rev. Tuberc., C. Eugene Woodruff and W. Leonard Howard, February, 1951.

ACTH and the Kidney

Edith B. Farnsworth, M.D.
Associate in Medicine, Northwestern University

SEMINAR
of the
Department of Medicine
and
Cooperating Departments
of
The University of Illinois
Edited by:
Max Samter, M.D.
William R. Best, M.D.

Dr. Farnsworth: Despite widespread investigations into many aspects of ACTH and adrenal steroids over the past three years, their effects on the kidney are far from being understood. Relationship can be considered in two main categories, namely, their action (1) on the healthy kidney, and (2) on the diseased kidney. In the healthy kidney, ACTH apparently acts primarily on the tubules. A direct effect on glomerular filtration appears to be absent, but secondary changes are seen which are due to hydrodynamics of altered body water. The known changes may be summarized briefly as follows: phosphates and uric acid are excreted in increasing quantities, and there is often a sudden outpouring of potassium during a course of ACTH; on the other hand, there is a marked increase in the reabsorption of sodium and of water. Increase in excretion of nitrogenous products — indicated by an increased output of uric nitrogen — reflects, of course, in part, the increased protein metabolism caused by the hormone. Consequently, in a few patients we studied the ratio of urine to serum concentration of creatinine and of certain electrolytes. Taking the U/P ratio of endogenous creatinine as an index to water reabsorbed in the renal tubules, and relating the value thus obtained to the U/P sodium ratio, it was found that the reabsorption of sodium was markedly accelerated during the first four hours after the administration of 25 mg. of ACTH. Reabsorption of water was also increased, but to a significantly lesser extent.

In the impaired kidney, we have been interested in the effect of ACTH on its various diseases, particularly diffuse glomerulonephritis, acute or subacute, and in the nephrotic syndrome. We feel that the cases of subacute nephritis are more practical for a scientific study because the course of the acute illness is usually brief and self-limited; thus a large series with adequate controls would be necessary to make a valid evaluation in acute diffuse glomerulonephritis. It has been our impression — on the basis of studies in acute and subacute forms of this disease — that marked inflammatory changes have been repeatedly controlled by the hormone. There may be a transient rise in blood pressure, but this usually will not last. Changes in the degree of hematuria are often striking. We have seen improvement in clinical condition and control of azotemia. Other investigators, particularly Dr. George Thorn, have not seen as dramatic a change in this condition as demonstrated in our patients. I believe that much further investigation is necessary before the advisability of this agent in the routine management of the acute nephritic condition be stated.

Results of ACTH on the nephrotic syndrome in children have been more substantially documented. We recently reported fourteen cases with prolonged observation. There have been complete remissions in two, and partial remissions in the remainder. The older age groups do not appear to do as well as the younger children. Proteinuria is often accentuated during the first few days, then diminishes, either during or following a course of ACTH. Diuresis is very marked in many cases (Figure 1) and we have seen profound reduction in serum cholesterol, as well as in phospholipids and neutral fats. Neutral fats, or triglycerides, seem to be the most sensitive of the lipid fractions. If a given course of ACTH does not induce a diuretic response repeated courses with increased dosages often will do it. The anabolic protein phase is often very difficult to get started, but the results are gratifying when serum proteins begin increasing. It is still not obvious as to how much

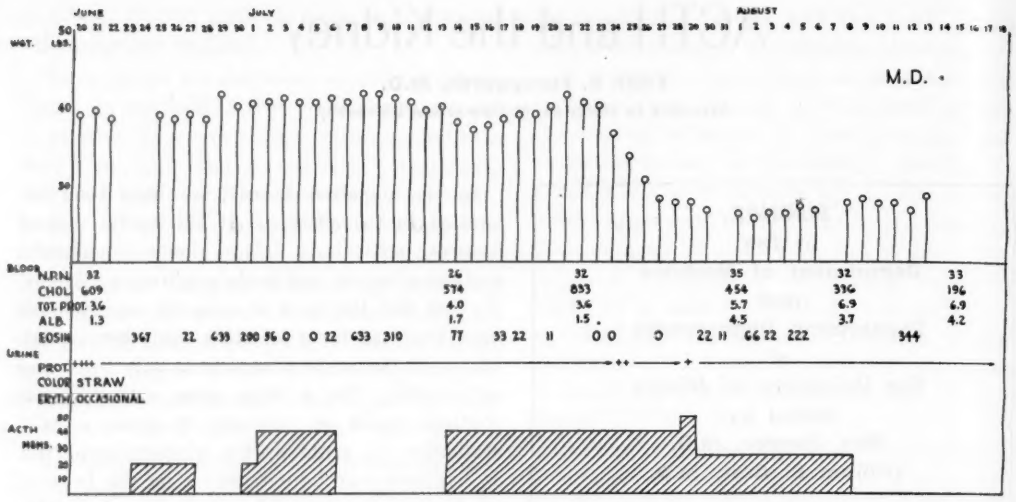


Figure 1. Clinical course of a three-year old child ill with a nephrotic syndrome during administration of ACTH.

improvement can be expected with repeated courses of ACTH in these cases. Early in the course of treating a case it is very disconcerting to see the increasing weight and blood pressure and one is often tempted to discontinue the drug before a good diuretic response has been initiated. Azotemia without fluid retention is almost a contraindication for using this agent inasmuch as the damaged kidney is able to excrete only so much nitrogenous waste despite adrenocortical stimulation.

In summary, ACTH affects the tubular excretion and reabsorption of several metabolic products in fairly consistent directions. The changes vary from person to person, however, and in the same person at different times. In acute or subacute diffuse glomerulonephritis, the corticoids released by ACTH often profoundly reduce the inflammatory reaction. In the nephrotic syndrome, particularly in children, ACTH sometime during the course of repeated administrations or following withdrawal will give rise to a marked diuretic response with clinical improvement. The duration of complete remissions, as well as the further treatment of partial remissions, are the problems which future experience may be hoped to solve.

Dr. Ford K. Hick, Professor of Medicine: How does Cortisone compare with ACTH in these conditions?

Dr. Farnsworth: Some good results have been reported from the use of Cortisone, but our experience is insufficient yet to completely evaluate the comparative value of the two agents.

Dr. J. A. Schoenberger, Instructor in Medicine: Have you seen glycosuria develop in these patients?

Dr. Farnsworth: Yes, we have seen it in some cases. Although we have not tested glucose threshhold and the tubular mass to glucose, we have seen glycosuria with relatively low blood sugar.

CASE RECORDS OF THE COOK COUNTY HOSPITAL

KARL MEYER, LEO M. ZIMMERMAN, DEPT. EDITORS

Pernicious Anemia Associated with Lymphosarcoma

Steven O. Schwartz, M.D. and Fern L. Stevenson, M.D.*

Chicago

Very few reports of the coexistence of pernicious anemia and leukemia or lymphosarcoma have been recorded. These are summarized in Table 1. The description of an additional case may, therefore, be of interest.

A 78 year-old white woman was admitted to the Cook County Hospital in September 1950, complaining of swelling of the ankles of four years duration. She had been hospitalized in 1930 for an appendectomy and in 1946 for a broken hip.

Examination revealed an old, poorly-nourished patient sitting up in bed because of moderate dyspnea. The blood pressure was 155/70. The tongue was pale with atrophy of the papillae. There were bilateral cataracts. Crepitant rales were heard in the lung bases. A systolic murmur was audible over the apex of the heart. The liver was palpable three cm. below the right costal margin. The spleen was not demonstrably enlarged. The supraclavicular lymph nodes were enlarged to twice, and the inguinal and axillary nodes to approximately three times normal size. There was moderate edema of the legs and over the sacrum.

Laboratory examination included the following: gastric analysis which revealed no free acid after histamine administration; urinalysis showed + albumin but was otherwise negative; Wasserman and Kahn tests were negative; NPN 32 mg.%, total protein 5.9, albumin 3.6, globulin 2.3 gm.%, phosphorus 3.5, total cholesterol 138, alkaline phosphatase 1.5 units, icterus index 16 units, thymol turbidity 1.6, cephalin flocculation 0, gamma globulin 0.74. Peripheral blood findings are shown in Table 2.

The heart was found to be greatly enlarged in its transverse diameter, with prominence of the left ventricular segment on the x-ray film of the chest taken shortly after admission. The aortic shadow was widened, and there was calcification within the aortic knob. Lung fields were within normal limits.

*Hematology Research Foundation Fellow.

From the Hematology Laboratory and the Hektoen Institute for Medical Research of the Cook County Hospital, Chicago.

Aided by a grant from the Wilson Laboratory, Chicago.

TABLE 1

Summary of Acceptable Cases of Pernicious Anemia Coexisting with Leukemias or Lymphomas.

Author	Year	Leukemia or Lymphoma
Rich and Schiff[2]	1936	Chronic lymphatic leukemia
Touw and Graffland[4]	1939	Aleukemic lymphatic leukemia
Sterne, Schiro and Molle[3]	1941	Subacute myelogenous leukemia
Wooley[5]	1944	Chronic myelogenous leukemia
Mason and Schwartz[1]	1949	Chronic lymphatic leukemia

A biopsy was performed on a lymph node from the left supraclavicular region. Microscopic examination (Dr. A. Ragens) revealed a complete loss of architecture with replacement by numerous lymphoid cells. Scattered throughout, in addition to these lymphoid cells, were large mononuclear cells with reticulated cytoplasm. The capsule of the lymph node was infiltrated by numerous lymphoid cells similar to those found in the node proper. The diagnosis was lymphocytic lymphosarcoma.

An aspiration biopsy of the sternal marrow revealed it to be hypercellular. The nucleated red to white cell ratio was 1:2. Erythropoiesis was megaloblastic with a slight left shift. Granulopoiesis was slightly toxic and characterized by the presence of giant myelocytes, metamyelocytes, and band cells. Lymphocytes were markedly increased in number and many of them contained bilobed nuclei. The marrow findings were considered to be diagnostic of pernicious anemia and malignant lymphoma.

The patient was given liver extract in small doses daily from 9/26/50 to 10/10/50 with a reticulocyte response of 34.8 per cent on the seventh day. Subsequently, maintenance doses of liver were administered.

Comment: The diagnosis of pernicious anemia is substantiated by the megaloblastic marrow, the absence of free gastric HCl after stimulation with histamine, the reticulocyte response of 34.8 percent after seven days of liver therapy,

TABLE 2

Summary of Peripheral Blood Findings

Date	Hemoglobin Gms.	%	RBC	WBC	Retic	Polys	Band	Meta	Myel	Eosin	Baso	Lymp	Mono	NRBC	Remarks
9/25/50	6.0	39	2.08	24,500		21						75	4		
9/26/50	6.0	39	2.08	24,500	1.6	21						75	4	3	An +++ Macro + Poly + Stippled RBC
9/27/50	5.9	38—	1.70	48,900	1.4	11	1	1		1		85	1	2	
9/28/50					5.2										
9/29/50					6.8	12						85	3	4	
9/30/50	7.8	50	2.05	81,000	11.0	16		1	1			79	3	12	
10/1/50					14.4										
10/2/50					34.8										
10/3/50	6.8	44	1.91	36,550	32.6	22						71	7		
10/4/50					25.8										
10/5/50					14.8										
10/6/50	7.8	50	2.25	26,750	11.8	34						63	3		An ++ Pk + Poly +
10/10/50	9.8	63	2.82	24,200	10.0	29						65	6		An ++ Mac + Poly +
10/19/50	11.4	73	3.47	9,150		59				1	1	35	4		
11/3/50	14.5	93	4.98	5,650		54	10			8		21	7		

and the excellent clinical and hematologic (return to normal values of RBC and hemoglobin) response to liver therapy alone.

The diagnosis of lymphosarcoma was suspected from the physical findings, confirmed by the leukocytosis and lymphocytosis, substantiated by the marrow findings, and proved by the biopsy of the lymph node.

It is interesting to note that both the peripheral lymphocytosis and leukocytosis have disappeared for the time being, without specific therapy directed to the lymphosarcoma.

SUMMARY

A case of pernicious anemia associated with lymphosarcoma is presented. Only five other cases of pernicious anemia associated with leukemia or lymphoma have been reported.

BIBLIOGRAPHY

1. Mason, J. and Schwartz, S. O.: Coexistence of Pernicious Anemia and Chronic Lymphatic Leukemia, Ill. Med. J. **96**: 197:1949.
2. Rich, M. L. and Schiff, L.: A Case of Pernicious Anemia with Chroic Lymphatic Leukemia, Ann. Int. Med. **10**: 252:1936.
3. Sterne, E. H., Jr., Schiro, H., and Molle, W.: Pernicious Anemia Complicated by Myelogenous Leukemia, Am. J. Med. Sci. **202**: 167:1941.
4. Touw, J. F. and Graafland, C. A.: A Case of Aleukemic Lymphatic Leukemia with Specific Localizations and Symptomatic Pernicious Anemia, Acta. Med. Scand. **102**: 124:1939.
5. Wooley, P. B.: Myelogenous Leukemia Complicating Pernicious Anemia, Lancet **1**: 85:1944.

THE MAYO BROTHERS

In their last ten years together there was an unfailing routine when they both were in town. Dr. Charlie would come in eagerly every day, "Is Will here?" Dr. Will entering the corridor would call out, "Have you seen Charlie today?" and immediately go in search of him. One day, in their last year, when they were about to leave town on different occasions they met in the older brother's office, and stood for a moment, each with his hands on the other's shoulders. "Well, Charlie." "Well, Will." And, almost together, "We've had a good time." Whenever they parted even for a few days, in that year, they felt that it might be a last good-bye.

When Dr. Charlie died and Dr. Will soon followed, the world paid them tribute. With their passing an epoch ended. Together they had added much to the sum total of human knowledge and contributed greatly to the improvement of human welfare. *Excerpt: History of Medicine in Minnesota, Nora H. Guthrey, Rochester, Minnesota, Minn. Med., February* 1951.

CASE REPORTS

Torsion of the Gall Bladder

William J. Vynalek, M. D., F.A.C.S. and Frank P. Paloucek, M.D.
Berwyn

Torsion of the gall bladder is an exceedingly rare condition, there being approximately 100 cases in world literature since Wendel reported the first case in 1898. Most of these are in foreign publications. Torsion can occur only when the gall bladder hangs free in the peritoneal cavity with little or no attached mesentery. It is most common in elderly women. Symptoms and findings are not diagnostic. Usually a diagnosis of gall-bladder pathology or appendicitis is made. Only surgery will save the patient. With the abdomen open, cholecystectomy is usually a simple procedure because of the long, narrow pedicle.

The patient was a 74 year old white female admitted to the MacNeal Memorial Hospital, Berwyn, Ill., at 6:35 PM on March 20th, 1950.

Past history was negative except for an obstetrical history of five children. She had apparently been well until the night before admission when she was seized with a diffuse, severe epigastric pain associated with marked nausea and vomiting. The pain eventually became localized to the right lower quadrant and particularly over McBurney's point. Except for this the patient had no other symptoms.

Physical examination revealed a frail, elderly woman appearing acutely ill and slightly dyspneic. Her pulse was 104, respirations 26, temperature 99.4 F., and blood pressure 196/90. Her weight was 106. The head, neck, chest and extremities revealed no abnormal physical findings. The abdomen was not distended, but there was marked tenderness and rigidity over the entire right abdomen, the point of maximum tenderness being slightly above McBurney's point. Moderate rebound tenderness was present, but no masses were palpable. Bowel sounds were diminished. Pelvic examination was negative except for a cystocele, and rectal examination revealed only moderate right sided tenderness.

Laboratory work yielded a negative Kahn, a 5,000,000 red blood cell count, 15,500 white blood

From the Department of Surgery, MacNeal Memorial Hospital, Berwyn, Illinois, and Stritch School of Medicine, Loyola University, Chicago, Illinois.

cells with 86% polymorphonuclear leukocytes and 14% lymphocytes. The hemoglobin was 15.2 grams.

The patient was given 300,000 units of penicillin, ¼ gram of streptomycin, 1/32 grain of dilaudid, and 1/150 grain of atropine and taken to surgery 1½ hours after admission with a diagnosis of an acute appendicitis.

Under cyclopropane anesthesia, later supplemented with curare, the abdomen was opened with a right rectus incision opposite the umbilicus. The lower abdomen including the appendix was normal. On exploration of the upper abdomen, a large tense, fluid-filled mass was palpated in the region of the gall bladder. The incision was then extended upward. The gall bladder appeared; it was markedly distended, and tense with fluid and of a black color. A trochar was inserted and 80 to 90 cc. of a blue black fluid was aspirated. The gall bladder was then easily followed to its base and found to be but slightly attached to the liver bed at its neck. About 2 cm. from its junction with the common duct, there was a half twist (180 degree) of the cystic duct. The discoloration proceeded upward from this torsion. The cystic duct and artery were easily isolated and doubly ligated. The gall bladder was then lifted free and removed.

The pathologist's report revealed an acute hemorrhagic infarction of the gall bladder with almost complete necrosis of the gall bladder wall. Four pile pigment calculi measuring 2 to 3 mm. in diameter were also found.

With the exception of a slight wound infection, the patient made an uneventful recovery and was discharged on her 15th post-operative day.

CROCODILE TEARS

The notion that the crocodile, a harmful reptile, will weep over a man's head after he has devoured the body and then will eat up the head too was the theme of one of the many "scientific" anecdotes of Pliny the Elder. It was popularized in the fourteenth century by the "Travels of Sir John Mandeville." This gentleman-explorer existed only in the imagination of Jean de Bourgogne, a French physician, who himself never left his country and who, charmingly enough, confessed that had these fantastic tales he relates been told him, he would not have believed them (Legouis, E.: A History of English Literature: The Middle Ages and the Renascence, vol. 1, London, J. M. Dent & Sons, Ltd., 1948). *Excerpt: The Syndrome of Crocodile Tears, Jerzy Chorobski, M.D. Warsaw, Poland, A.M.A. Archives of N. & P.*

The doctor roused sleepily when the telephone jangled at 3 a.m. He heard an anxious voice. "Doc, this is Leon Smith, I wish you'd come out to my place right away. I know it's a long drive but I'm afraid my wife has appendicitis."

"Relax, man," the doctor said soothingly. "You know I took out your wife's appendix four years ago. Did you ever hear of anyone having a second appendix?"

"Get a move on, Doc. Ever hear of anybody having a second wife?"

Mr. Biggs liked to know all about the employees who toiled in his vast business. One day he came upon a new young man who was dexterously counting out a large wad of the firm's cash.

"Where did you get your financial training, young man?" he asked.

"Yale," the young man answered.

Mr. Biggs was a staunch advocate of higher learning.

"Good," he said, "And what's your name?"

"Yackson," was the reply.

PATHOLOGY CONFERENCES

EDWIN F. HIRSCH, DEPARTMENT EDITOR

Presentation of Three Cases

Herman Josephy, M.D.
Chicago State Hospital
Chicago

CARCINOMA OF THE MAMMARY GLAND; DEATH FROM METASTASES 22 YEARS AFTER RADICAL MASTECTOMY

A white woman, born in 1894, had a right radical mastectomy for carcinoma in 1927 or 1928. The exact date of this operation could not be verified. In August 1929 she was admitted to the Augustana Hospital in Chicago. The record received from there states that in January 1929 a node from the right axilla had been removed and was found to have metastatic carcinoma and that another similar node was removed in June 1929. When examined in August 1929 the upper end of the mastectomy scar had a hard poorly defined mass. The right axillary tissues were excised and a course of roentgen x-ray treatments was given. The diagnosis at this time was carcinoma of the right breast, recurrent carcinoma in the right axilla.

About 10 years later the patient became mentally ill. She was treated in several hospitals and in 1943 was committed to Chicago State Hospital. She stayed there until her death in 1950. The psychiatric diagnosis was paranoid schizophrenia.

Physical examination at the time of admission in 1943 revealed the mastectomy scar and also a marked edema of the right arm. There was no evidence of recurrent or metastatic growths. No enlarged lymph nodes were found in 1944 and in 1945, when the patient was in the hospital for intercurrent irrelevant ailments. In September 1948, about 20 years after the first operation, a mass of hard nodes was found in the left axilla. The left breast had no evidence of tumor. On Sept. 13, 1948 these enlarged lymph nodes were removed. They were below the pectoralis major muscle and extended along the vein into the left axilla. The tissues removed contained several lymph nodes, the largest 1 inch in diam. The nodes were hard and surfaces made by cutting were gray. The nodes were imbedded in fat and fairly well separated from each other. Microscopial examination demonstrated small heaps and strands of meta-

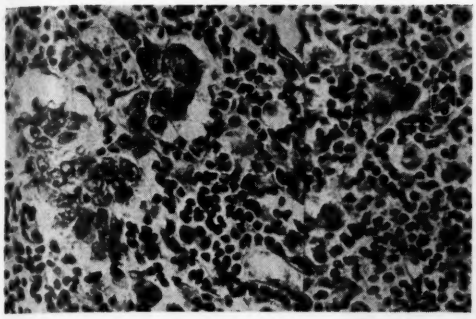


Figure 1. Axillary lymph nodes, removed 1948. Photomicrograph. Occasionally small masses of carcinomia cells are in the sinuses; however mostly the tumor cells are dispersed singly or in groups of two or three.

static carcinoma. The large tumor cells spread diffusely in the lymph sinuses (Figure 1).

A careful physical examination of the patient was done, including a gastrointestinal series and a complete Roentgen ray survey of the skeleton. No primary tumor was found. Finally, a plaquelike mass was palpated in the left breast, and this mammary gland was amputated on November 1, 1948. Examination of the gland tissues failed to disclose carcinoma.

The patient recovered from this operation and stayed in the general ward until July 1950 when she developed ascites. She became emaciated, rapidly grew worse, and died on August 21, 1950, 22 or 23 years after the first operation for carcinoma of the breast.

The autopsy demonstrated the two mastectomy scars without tumor nodules. No enlarged lymph nodes were in the axillæ. The abdominal cavity contained about four liters of a yellow, slightly turbid fluid. The mesentery and the omentum were firm, grey, and were invaded by metastatic carcinoma. The peritoneum of the small pelvis, of the diaphragm and of the intestines had numerous small hard grey nodes and streaks.

The pleural spaces had no fluid. Some enlarged, hard lymph nodes were in the anterior mediastinum. Otherwise there were no relevant findings in the chest. Careful examination of the lungs for a bronchial carcinoma was negative. Neither was a primary tumor found in the stomach and the intestines. The liver, the gall bladder, the spleen, the pancreas, the suprarenal glands and the kidneys had no tumor nodules. The ovaries were small and normal in appearance. The same was true for the uterus and the urinary bladder. The brain weighed 1100 gms and seemed to be normal.

Microscopical examination revealed a diffuse invasion by carcinoma cells which had spread in the lymphatics and had little tendency to form large nodes or masses. The cells were large and had large hyperchromatic nuclei. They were identical with the cells found in the axillary lymphnodes removed in 1948.

In the abdominal cavity was a diffuse invasion of the peritoneum. The lymph spaces were filled with tumor cells, also the sinuses of the lymph nodes (Figure 2). Solid nodes were in the intestinal serosa. The diaphragm was covered by a thin layer of carinoma cells. The lymph vessels of Glissons capsul were filled with tumor cells (Figure 3); the liver parenchyma was spared. The brain had a diffuse carcinoma invasion of the leptomeninges (leptomeningitis carcinomatosa). The subarachnoidal spaces were filled with tumor cells, which seldom formed tiny nodes, but mostly were singly or in small groups in the tissue (Figure 4). The brain and the Virchow-Robin spaces were not invaded.

COMMENT

It is well known that the five years period does not mean complete eradication of a breast cancer and that recurrences and metastases may appear much later. The case reported here illustrates

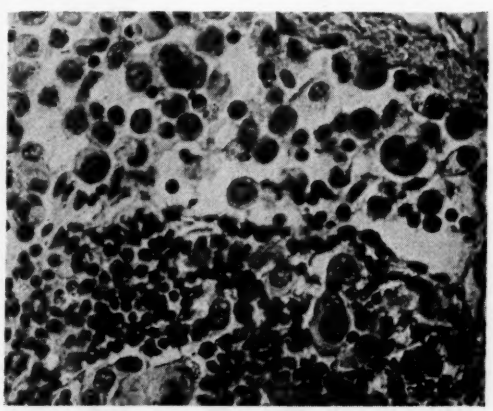


Figure 2. Abdominal lymph node, removed at autopsy. Photomicrograph. The marginal sinus is filled by single carcinoma cells.

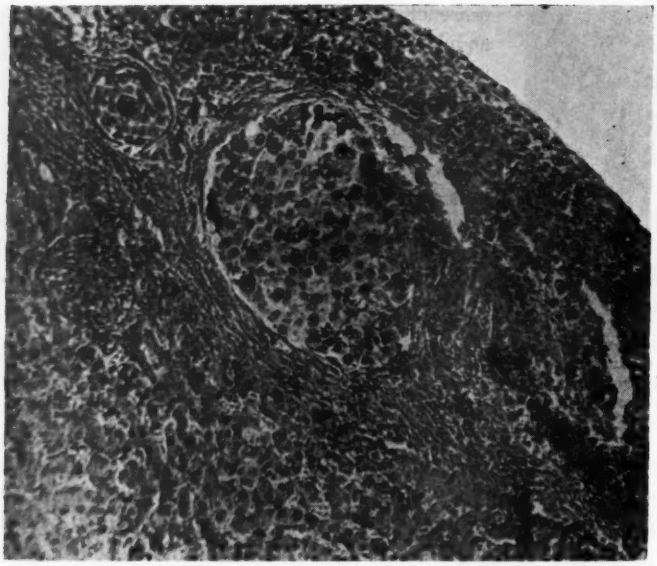


Figure 3. Liver, with Glissons capsule. Photomicrograph. Lymph spaces are filled with tumor. The liver parenchyma (left lower corner) is not invaded.

this fact. It proves that late metastases may appear in locations where least expected and where they must have been present for many years without causing clinical symptoms.

Some conclusions are permitted from the morphological structure of this specific tumor as to its biological potentialities. The tumor cells were mainly in the lymphatics and apparently seemed unable to form large metastatic nodes. This was evident in the lymph nodes removed in 1948. Accordingly the infiltrating power of the tumor cells is rather limited: they propagate in the lymph but are not sufficiently invasive to break through the wall of the lymph vessels. Consequently infiltration of the peritoneum occurred without the formation of a single node in the liver, and carcinoma invaded the leptomeninges without extension into the brain. This apparently low degree of invasiveness may explain the long survival of this patient.

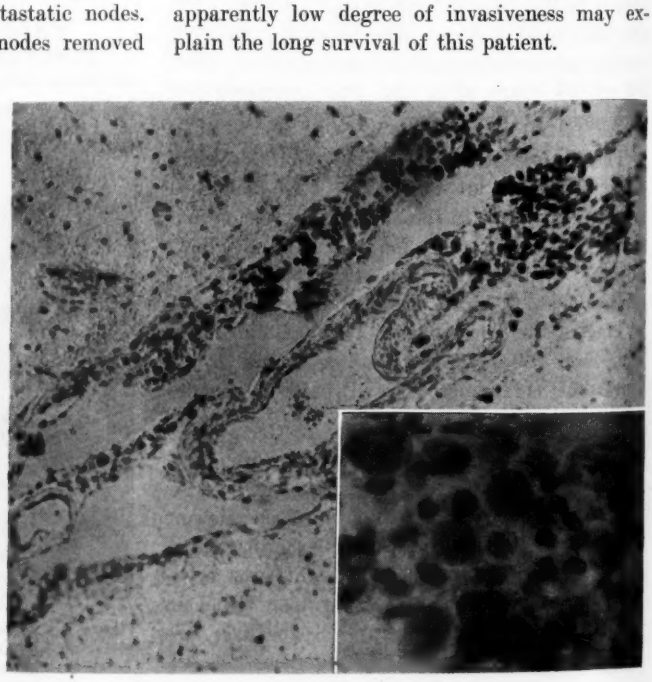


Figure 4. Brain. Carcinomatosis of the leptomeninges. Photomicrograph. The subarachnoidal space is filled with tumor cells. Inset shows the tumor cells at high power magnification.

BENIGN SOLITARY ADENOMA OF THE LIVER IN A MALE AGED 88 YEARS

This white man was first admitted to the Chicago State Hospital in 1927, at the age of 65 years. Then he was diagnosed as a chronic alcoholic with mental deterioration. He remained in the hospital until 1946. During the years of his hospitalization he had no significant physical ailments.

In 1948 he was readmitted with symptoms of advanced senile dementia. Physical examination revealed moderate cardiac decompensation and a chronic bronchitis. The patient remained in the hospital for two years and died in 1950 at the age of 88 years.

The body of this old man was in poor nutrition. The heart had coronary sclerosis and an aneurism of the left ventricle. There was a clear fluid in both pleural cavities. The lower lobe of the right lung had regions of broncho pneumonia. The spleen was moderately hyperemic.

The liver weighed 2200 gm. The large left lobe extended to the navel. The surface was smooth and glistening. A large encapsulated tumor in the left lobe, 12 by 9 by 9 cm., was surrounded by brown liver parenchyma. The tumor was soft and elastic. Surfaces made by cutting were yellow intermixed with large irregular dark red regions. (Figure 5).

Microscopical examination of the tumor revealed an epithelial growth (Figure 6) composed of medium-sized cuboidal cells in cords. The cells had a small nucleus and considerable acidophilic cytoplasm. These cells resembled closely liver cells. They formed irregular rabecles and cords, separated by a loose fibrous tissue or by sinusoid structures. Neither bile pigment nor bile ducts were found. The tumor had large regions of necrosis.

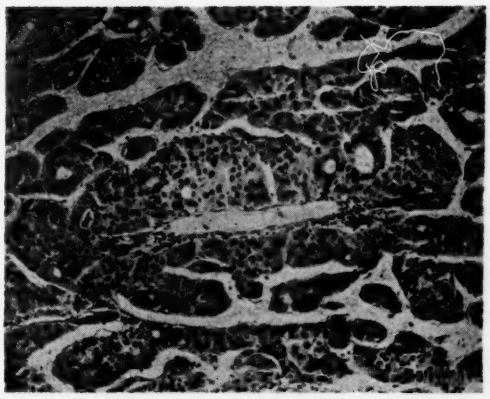


Figure 6. Adenoma of the liver. Photomicrograph. Note the uniformity of the cells and the arrangement in cords and trabecles, separated by sinusoids.

COMMENT:

A diagnosis of a benign adenoma of the liver was made, based upon the location of the tumor, the structure and arrangements of its cells and the fact that it was encapsulated and did not metastasize.

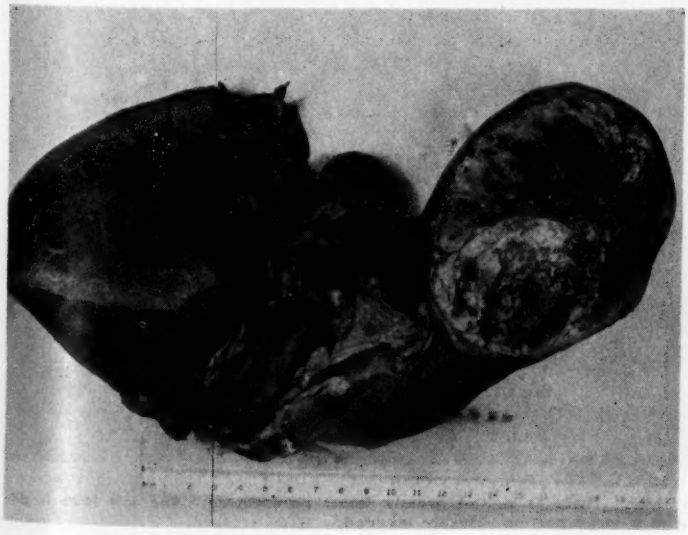


Figure 5. Solitary benign adenoma of the liver.

This is a rare primary liver tumor, rarer than primary carcinoma. Most of the adenomas reported, occurred in children and many of them were small. Contrary to the primary carcinoma of the liver, which often occurs with cirrhosis, the benign adenoma is found usually in a liver with normal parenchyma.

The case reported here seems to be unique as regards the size of the growth and the age of the patient.

Common with other benign adenomas of the liver, this tumor did not cause symptoms. If the clinician would have found the mass upon examination of the abdomen, he might have been misled by its smooth surface and size into considering it an enlarged spleen.

PRIMARY CARCINOMA OF THE *LIVER IN AN 85 YEAR OLD* WOMAN

A white woman, 85 years old, was admitted to the Chicago State Hospital on August 26, 1950. She had been confused and had disturbed her family for several months. Occasionally she had complained of pains in the abdomen. On admission she was in advanced senile dementia. Physical examination revealed an enlarged heart and a blood pressure of 90/(170) mms. Hg. The patient developed edema of the left leg, gangrene of the toes and expired two weeks after admission.

The body of this old white woman was in good nutrition. There was brown atrophy of the heart muscle and a hypostatic pneumonia. The large liver weighed 2400 gms. The right lobe contained a carcinoma about 15 by 10 by 15 cm. (Figure 7) On the right edge was an indefinite border against brown liver parenchyma. The left edge merged into the left lobe, which was studded with many small tumor nodes separated by a small amount of liver parenchyma. The gall bladder was without tumor and no malignant growth was present in any other structure. Six small hard lymph nodes were along the abdominal aorta.

The right kidney and ureter were missing. As there was neither a surgical scar nor any scar tissue in the retroperitoneal region, nor history of a previous operation, this must be a congenital defect. The urinary bladder had a small pouch, 2 mm deep, at the right upper corner of the trigon. There was a uterus bicornis.

Microscopical examination of the liver tumor revealed carcinoma. The structure, in sections

Figure 7. Primary cancer of the liver. There is a massive tumor in the right lobe, with a large portion of grossly intact parenchyma. The left lobe is diffusely invaded.

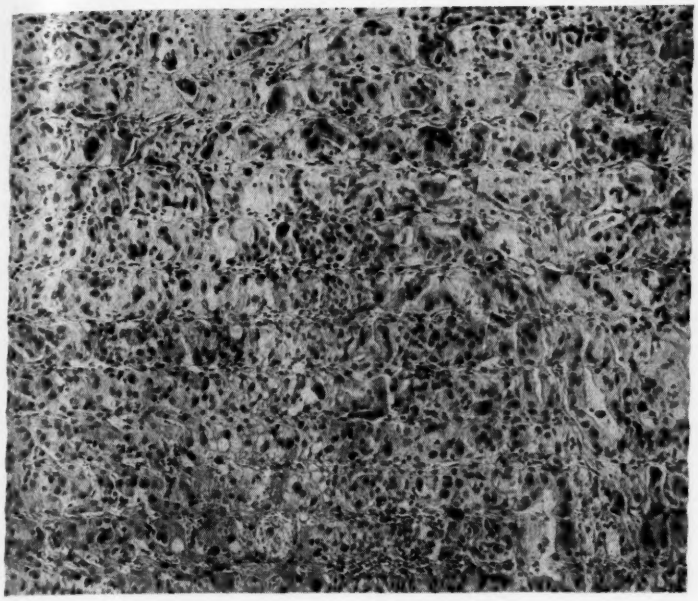


Figure 8. Primary cancer of the liver. Photomicrograph. Small tumor node (right upper corner) merging imperceptibly into normal liver tissue (left lower corner). Note the many giant cells in the tumor.

from different regions was variegated. The main mass, with large necrotic regions, consigned irregular cords and tubes of epithelial cells in a rather ample stroma. The cells were cuboidal and resembled liver cells, or they were columnar and frequently had a brush border, thus resembling bile duct epithelium. The same variation was in the small nodes in the left lobe of the liver. (Figure 8) Some had a papillary structure with columnar cells covering a fibrous stalk in a single layer. Others were irregular cords of cells, which seemed to merge imperceptibly into normal liver tissue. In such nodes were many giant cells with large irregular nuclei or with multiple nuclei. The liver parenchyma itself had fatty changes of the cells. There was no cirrhosis. The hard lymph nodes along the aorta contained metastases.

COMMENT:

The diagnosis of a primary carcinoma of the liver is based upon the fact, that no other primary growth was found and also upon the peculiar variegated structure of the tumor, which is a characteristic of primary carcinomas of the liver.

Primary carcinoma of the liver is rare. It is even more unusual in a liver without cirrhosis. The old age of this patient (85 years) is remarkable. That the tumor did not cause severe symptoms seems to be explained by the preservation of a large amount of intact liver tissue in the right lobe.

NEWS OF THE STATE

ADAMS

Society News.—Dr. Edwin N. Irons, Chicago, addressed the Adams County Medical Society, in Quincy, March 12, on "The Use and Abuse of ACTH and Cortisone."

Personal.—Dr. Ralph T. Hinton, Quincy, recently celebrated his seventieth birthday.

Staff Election.—Dr. Paul T. Lambertus was recently elected president of St. Mary's Hospital staff. Other officers chosen were Dr. Frank Brenner Jr., vice president; Leroy M. Wolfe, D.D.S., secretary-treasurer; Dr. Gordon Perisho, director of clinical conference; Dr. Frank A. Mayner, director of pathology conference; and Drs. Arthur H. Bitter, Theodore L. Stebbins, Kent W. Barber, Walter Stevenson Jr., executive board.

CHAMPAIGN

Society News.—The Champaign County Medical Society was addressed March 8 by Dr. Robert Dean Woolsey, St. Louis, on "Diagnosis and Treatment of Low Back Pain."

COOK

Personal.—Dr. Harold E. Smith has been reelected chief of staff, Westlake Hospital, Melrose Park. Other officers reelected are Dr. Dwight C. Reeves, vice chief of staff; Dr. Walter Simmonds, secretary; and Dr. Adam Schultz, treasurer.—Dr. Harry M. Hedge has been named associate deputy director for the Evanston medical and public health division of the civil defense organization. He will serve with Dr. Winston H. Tucker, Evanston health commissioner and deputy director.—Dr. Stephan Biezis, senior surgeon at Holy Cross Hospital, has been named physican for the Sanitary District's 1,800 employes, it was announced recently.—Dr. Jerome R. Head was recently appointed to a three-year membership on the Suburban Cook County Tuberculosis Sanitarium District.

Society News.—The Chicago Rheumatism Society was addressed March 28 on "Significance of Giant Follicular Hyperplasia in Lymphadenopathy of Rheumatoid Arthritis" by Drs. A. G. Motulsky, S. L. Weinberg, Otto Saphir and Edward F. Rosenberg. "Bal Therapy of Gold Intoxication: Review of Literature and Report of Two Cases" was presented by Dr. Jerome F. Strauss, Jr., and Dr. Rosenberg.—Dr. Philip Thorek addressed the Western Colorado Spring Clinics, April 1, on "The Practitioner Approaches Esophageal Diseases." The following day Dr. Thorek discussed "The Acute Abdomen" before the Pueblo County Medical Society, Pueblo, Colo.—Dr. Harold Laufman addressed the Milwaukee Academy of Medicine on "The Present Status of the Significance of Intravascular Agglutination", March 20, and conducted a clinic on "Peripheral Vascular Disease", the following day, at the Veterans Administration Center, Wood, Wisc.—On April 1 Dr. Herman L. Kretschmer spoke on "Your Obligation to the American Medical Association" before the resident staff of the John Sealy Hospital of the University of Texas at Galveston. At the annual meeting of the Texas Surgical Society on April 2, Dr. Kretschmer gave a talk on "The Life Span After Prostatectomy". In the evening he was the guest speaker at the banquet and spoke on "Medical Philately".

Branch Meetings.—Dr. L. W. Peterson, president, North Shore Branch, Chicago Medical Society, presided at a meeting of the group, April 3. Dr. Alexander Brunschwig, New York, discussed "Radical Surgical Treatment of Malignant Diseases" and Dr. Roger A. Harvey, Chicago, "Radical Irradiation Therapy in Malignant Disease with Special Reference to Betatron."

George Hassin Honored.—A testimonial dinner will be held May 24 at the Congress Hotel for Dr. George B. Hassin, emeritus professor of neurology, University of Illinois College of Medicine. The occasion also marks his seventy-eighth birthday. Friends, former students and associates will attend the dinner at which Dr. Louis J. Pollock will be toastmaster. Presentation of a parchment scroll acknowledging his many years of service and contributions in the field of neuropathology will be a feature of the occasion.

Percival Bailey Named Director of Neuropsychiatric Institute.—Dr. Percival Bailey, Chicago, has been named director of the Illinois Neuropsychiatric Institute. He will also continue as research consultant to the Welfare Department.

Award to Simon Zivin.—Included among eight physicians who received national fellowships is Dr. Simon Zivin, according to the Chicago Tribune. The fellowships are awarded by the Arthritis and Rheumatism Foundation. The winners will receive from $4,000 to $6,000 for a year of intensive studies in the basic sciences related to rheumatic disease.

The Annual Davis Lecture.—"The Evolution of Medical Illustration" was the title of the Eighth Annual D. J. Davis Lecture on Medical History, April 11. Mr. Thomas S. Jones, Professor of Medical and Dental Illustration, University of Illinois, gave the lecture at the medical school. The lecture series was established by associates and friends of Dr. Davis on his retirement as dean of the Medical College in 1943.

Medical Aspects of Atomic Warfare.—A series of lectures on medical aspects of atomic warfare opened April 18 at the Chicago Medical School with a talk by Dr. A. R. Goldfarb on "Physical Aspects of Atomic Warfare." The other lectures given were Dr. Harold Koenig, "Pathology of Atomic Warfare"; Dr. Leo M. Zimmerman, "Treatment of Primary Injuries Resulting from Atomic Attack; Dr. Harold Elishewitz, "Epidemiological Aspects of Atomic Warfare"; and Dr. Goldfarb, "Methods of Treating Radiation Damage."

Lecture Series on Cancer.—A series of lectures on cancer opened at the Chicago Medical School, April 11, with a talk by Dr. Philippe Shubik, assistant professor of surgery and coordinator of oncology, at the school, on "Experimental Cancer Research." Other lecturers in this series, all members of the faculty of the medical school, were: Dr. Milton Tinsley, associate professor of neurosurgery, April 18, "Psychosurgery in the Mentally Ill and for Intractable Pain with Special Reference to Topectomy"; Dr. Bernard M. Chapman, associate in surgery, April 25, "Experiences in Cytologic Diagnosis of Cancer"; Dr. Jacob M. Essenberg, professor of microscopic anatomy, May 9, "Chronic Toxicity of Nicotine with Special Consideration of Carcinoma of the Lung"; Dr. Robert Daniel Crane, assistant in surgery, May 16, "Surgical Diseases of the Pancreas"; Dr. Paul Mandel Egel, assistant in surgery, May 23, "Surgical Diseases of the Thyroid."

The Public Health Nurse in Your Community.—A round table discussion of functions of public health nursing featured a public meeting sponsored by the Chicago Council on Community Nursing, April 2. The speakers included Miss Mary Dunlap, R.N., associate professor, nursing education, University of Chicago; Miss Gertrude Platzke, R.N., superintendent of nurses, Chicago Health Department; Mrs. Madeline Roessler, R.N., director, nursing division, Cook County Department of Public Health; Mrs. Eloise T. Phelps, R.N., superintendent of nurses, Field Division, Municipal Tuberculosis Sanitarium; Mrs. Elizabeth McCreary, R.N., Superintendent, The Infant Welfare Society of Chicago; Miss Julia MacNeill, R.N., supervisor, The Visiting Nurse Association of Chicago; and Mrs. Ruth Kelpe, director, Social Service, Michael Reese Hospital and Mandel Clinic.

Chicago Area Nursing School Staff Members Added to Northwestern Faculty.—Northwestern University has appointed to its faculty five staff members of Chicago area schools of nursing which are affiliated with the University's nursing education program.

Faculty appointments were given jointly by Northwestern's College of Liberal Arts and the Medical School's Department of Medicine to the directors of nursing and their assistants at Wesley Memorial and Passavant Memorial hospitals, both located on the Chicago campus, and Evanston Hospital, Evanston, Ill.

The title of associate professor of nursing education was given to Miss Edna S. Newman of Wesley Memorial Hospital; Miss Miriam Dolly Rand of Passavant Memorial Hospital, and to Miss Elizabeth Winnifred Odell of Evanston Hospital, all directors of nursing in their respective schools.

Miss Laura Bernice Chapman of Wesley Hospital and Miss Clare Louise Smith, Evanston Hospital, were given the rank of instructor in nursing education.

Northwestern conducts three programs in nursing education. The first offers students the diploma of a graduate nurse on completion of three years in one of the three hospitals affiliated with the University. The second program, leading to a Bachelor of Science degree and a nursing diploma, requires that the student have two years of liberal arts credits before entering the School of Nursing. One of these two years must be spent in Northwestern's College of Liberal Arts.

In the third nursing education program, established in November of 1950, a student may obtain a Bachelor of Science degree in nursing in addition to the diploma in nursing after completion of 90 quarter hours in any accredited university and three years in the School of Nursing.

KNOX

Society News.—Dr. Robert L. Jackson, professor of pediatrics, University of Iowa College of Medicine, discussed "The Diagnosis and Treatment of Rheumatic Fever" before the Knox County Medical Society, March 15.

MACON

Society News.—At the recent meeting of the Macon County Medical Society in Decatur, Dr. Leonard Corden, Chicago, discussed "Practical Considerations in Management of Coronary Disease."

Personal.—Dr. Wayne W. Zimmerman has been certified by the American Board of Orthopedics, according to the Macon County Medical Society Bulletin.

MACOUPIN

Physician Honored.—Dr. Otto Hauser, Mount Olive, who has been practicing for more than fifty years, was given a dinner, March 27, by the Montgomery and Macoupin County Medical Societies. The occasion marked his induction into the Fifty Year Club of the Illinois State Medical Society and presentation of the insignia, emblematic of the honor, was made by Dr. F. Garm Norbury, Jacksonville.

MADISON

Society News.—Dr. George G. Logan, Rochester, Minnesota, addressed the Madison County Medical Society recently on "Management of Asthma and Hayfever in Children."

MORGAN

Society News.—Mr. George E. Hall, staff associate, Bureau of Legal Medicine, American Medical Association, addressed a joint meeting of the physicians, dentists, attorneys and pharmacists of Morgan and Scott Counties, March 29, sponsored by the Morgan County Medical Society. His subject was "Some Problems in Forensic Medicine."

ROCK ISLAND

Society News.—The Iowa and Illinois Central District Medical Association met in Rock Island, March 21, to hear Dr. Thomas H. Seldon, Rochester, Minn., discuss "Blood Transfusions." Dr. Otto C. Stegmaier, Davenport, Ia., also spoke on "The Management of Common Skin Rashes." The May 16 meeting was addressed by Dr. Raymond Muther, St. Louis, on "Jaundice" and Dr. Lester R. Dragstedt, Chicago, on "The Present Status of Vagotomy in the Treatment of Peptic Ulcer."

Fifty Year Membership.—Dr. J. E. Westerlund, who has been practicing medicine in Cambridge since 1900, was inducted into the Fifty Year Club of the Illinois State Medical Society recently. Presentation of the insignia was made by a committee representing the Henry County Medical Society consisting of Dr. Ann Hopwood, Galva, president of the society; Dr. Fred Stewart, Kewanee, secretary; and Drs. A. I. Mathre and Manfred Kydan of Cambridge.

Staff Election.—Dr. S. Errico was elected president of the Moline Public Hospital medical staff at its annual meeting, March 9, succeeding Dr. F. E. Bollaert. Other officers chosen include Dr. M. F. Weissman, vice president; and Dr. B. K. Williamson, secretary. Elected to the executive committee were Dr. R. D. Perkins, Dr. H. C. DeBourcy and Dr. L. D. Barding. Members of the credential committee named were Dr. Bollaert, Dr. L. Gamburg, Dr. J. R. Goran, Dr. J. G. Gustafson, Dr. J. K. Hanson, Dr. L. S. Helfrich and Dr. L. J. McCormick.

SANGAMON

Society News.—Dr. Thomas Douglas, Chicago, addressed the Sangamon County Medical Society March 1, in Springfield, on "Diagnosis of Tumors of the Colon."

Eighty-Seven Years of Age.—Dr. M. M. Bradley, who practiced medicine for more than fifty-two years in Chatham, observed his eighty-seventh birthday recently.

WINNEBAGO

Society News.—Dr. H. Drell discussed "The Welfare State" before the Winnebago County Medical Society, in Rockford, March 23.

GENERAL

Study of Prevalence of Chronic Disease.—A grant of $60,000 has been made to the Hunterdon County (New Jersey) Medical Center to finance the study of the incidence of disabling chronic illness in the rural population. The study will be based on plans developed by the Commission on Chronic Illness and will be carried out by the Hunterdon Medical Center under the direction of Dr. Ray E. Trussel, director. A second study among the rural population is also planned by the commission but this study is still not definitely worked out.

Dr. Lescohier Retires.—Dr. A. William Lescohier, one of the nation's outstanding leaders in the pharmaceutical industry, retired recently as president of Parke, Davis & Co., a post he had held since March 1, 1938. He was succeeded in the 85-year-old company's top post by Harry J. Loynd, who had been vice president in charge of domestic and Canadian sales and promotion since June, 1945. The Lescohier, past president of the American Drug Manufacturers' Association, will continue to serve on Parke-Davis' board of directors.

Personal.—Mrs. Dorothy Bryan, recently connected with the American Foundation for the Blind, New York City, has been named assistant director of special education in charge of services for children with defective vision, Illinois Department of Public Instruction. She succeeds Miss Lillie Mae Rickman, who resigned to join the faculty of Illinois State Normal University.

MARRIAGE

Dr. John S. Garvin, Chicago, to Miss Betsy Stone, April 7.

DEATHS

Charles L. Boon, Washburn, who graduated at Chicago College of Medicine and Surgery in 1909, died in his home, March 11, aged 68. He had practiced medicine in Washburn since 1915.

Frank Buckmaster, Effingham, who graduated at Barnes Medical College, St. Louis, Mo., in 1899, died March 3, aged 76. He was a member of the "Fifty Year Club" of the Illinois State Medical Society.

WARREN E. BURGETT, Bement, who graduated at Kentucky School of Medicine, Louisville, in 1886, died March 14, aged 92. He was a member of the "Fifty Year Club" of the Illinois State Medical Society.

HENRY B. CARRIEL, retired, Kankakee, formerly of Elgin, who graduated at Northwestern University Medical School in 1888, died April 1, aged 87.

CHARLES T. DOLEZAL, Chicago, who graduated at Western Reserve University School of Medicine, Cleveland, Ohio, in 1926, died March 19, aged 51. He was assistant director of the American Hospital Association.

FREDERICK B. FELLOW, Wheaton, formerly of Glen Ellyn, who graduated at Chicago College of Medicine and Surgery in 1914, died March 4, aged 85, in Memorial Hospital of DuPage County, Elmhurst.

OLIVER J. FLINT, Princeton, who graduated at Northwestern University Medical School in 1898, died March 25, aged 80. He had served for 28 years as president of the Bureau County Tuberculosis Society.

JOHN L. FUDEMA, Chicago, who graduated at Bennett Medical College, Chicago, in 1914, died March 22, aged 61. He was on the staff of St. Elizabeth's Hospital.

SPENCER S. FULLER, Riverside, who graduated at Rush Medical College in 1902, died April 3, aged 77. He was health commissioner of Riverside.

ROBERT H. GRAHAM, Aurora, who graduated at Rush Medical College in 1920, died March 20, aged 57. He had practised as a pediatrician in Aurora for many years.

AUGUSTUS HOLLANDS, Kenilworth, who graduated at Chicago College of Medicine and Surgery in 1917, died March 23, aged 66.

ROBERT B. JACK, retired, Mount Vernon, formerly of Opdyke, who graduated at Barnes Medical College, St. Louis, in 1898, died March 7, aged 88.

JESSE T. MCDAVID, Decatur, who graduated at Barnes Medical College, St. Louis, in 1904, died March 20, aged 73. He was on the surgical staffs of St. Mary's Hospital and the Decatur and Macon County Hospital, and he was a past president of the Macon County Medical Society.

FREDERICK A. MCGREW, Table Grove, who graduated at Rush Medical College in 1893, died March 7, aged 85.

WILLIAM H. MALEY, Galesburg, who graduated at Rush Medical College in 1897, died March 7, aged 84. He had practiced medicine in Galesburg since his graduation.

JAMES M. MITCHELL, Oblong, who graduated at Hospital College of Medicine, Louisville, in 1901, died March 28, aged 96. The Crawford County Medical Society honored him on his 90th birthday. He had practiced medicine in Oblong since his graduation.

ARTHUR F. SCHUETTLER, East St. Louis, who graduated at Dunham Medical College, Chicago, in 1915, died March 22, aged 60.

CLIFFORD J. SPRUCE, retired, Chicago, who graduated at Jenner Medical College, Chicago, in 1907, died March 20, aged 81.

JOHN H. SPYKER, Decatur, who graduated at College of Physicians and Surgeons of Baltimore, Md., in 1902, died March 25, aged 74. He had practiced as a pediatrician in Decatur since 1903.

ALBERT M. WICKSTROM, Chicago, who graduated at the University of Illinois College of Medicine in 1906, died in April, aged 79.

TREATMENT OF PULMONARY TUBERCULOSIS

Streptomycin is exceedingly valuable in the treatment of pulmonary tuberculosis and its complications provided its limitations are realized and it is given at the most opportune time in the treatment program. Therapy programs are not rigidly standardized but the most common practice is to give 1 gram a day for not more than sixty treatment days. On regimens of this type toxicity is seldom a major problem. There is evidence that para-aminosalicylic acid when given with streptomycin delays the emergence of resistant strains. The most important things to bear in mind when treating pulmonary tuberculosis with streptomycin are that its action is only suppressive, of limited duration, and the drug is always to be used in conjunction with other therapeutic methods of established merit. *Excerpt: Streptomycin in the Treatment of Pulmonary Tuberculosis, Paul Murphy, M.D., St. Louis, J. Missouri M.A., March,* 1951.

"FOR THE COMMON GOOD"

Health Talk on TV.—Since the last issue of the Illinois Medical Journal, the following telecasts have been presented by the **Educational Committee** over **WGN-TV, Channel 9, Monday evenings, 9 p.m.:**

John F. Sheehan, April 2, Lumps, Tumors and Cancers.

Carl C. Pfeiffer, and Theodore R. Sherrod, April 9, Test Tube—To Chemical—To Drug—To You.

Sidney O. Levinson, April 18, The Patient Needs Blood.

Your Doctor Speaks over WFJL, Thursday, evenings at **7:30 p.m.,** carried the following transcribed broadcasts under the auspices of the **Educational Committee:**

Albert H. Andrews Jr., April 12, Bronchoscopy.

James T. Case, April 19, The Story of X-Ray.

Richard A. Perritt, April 26, Glaucoma.

Arthur J. Atkinson, May 3, Physiology of Digestion.

Here is Your Doctor over Station WCFL, Saturday mornings at **11 a.m.,** presented the following physicians in transcribed broadcasts under the auspices of the **Educational Committee:**

Leonard F. Jourdonais, March 31, Diabetes Mellitus.

Irving F. Steck, April 7, The Story of Arthritis.

Wright Adams, April 14, Coronary Heart Disease.

Edward L. Jackson, April 21, Obesity: A Serious Problem.

Lectures Arranged Through the Education Committee:

Paul Ashley, Chicago Heights, April 9, Ingalls Memorial Guild, Maybe It Isn't Cancer!

Henry DoLlear, Jacksonville, April 24, Lakeview High School, Decatur, Understanding Yourself.

Paul K. Anthony, Chicago, May 15, St. John Fisher Holy Name Society, Giving Blood Gives Life.

John L. Switzer, Chicago, May 19, Dorothy Slutsky Memorial Club, Rheumatic Heart Disease.

Lectures Arranged Through the Scientific Service Committee:

Walter W. Carroll, Chicago, April 18, Kane County Medical Society in Aurora, Cancer of the Head and Neck, illustrated.

N. C. Gilbert, Chicago, May 17, Fulton County Medical Society, in Canton, Coronary Insufficiency as a Causative Factor in Heart Disease.

George Cummins, Chicago, June 14, Fulton County Medical Society, Canton, Cardiovascular Aspects of Aging, illustrated.

Postgraduate Conference Arranged by Postgraduate Education Committee:

In **La Salle,** at the **Kaskaskia Hotel, Thursday, April 19,** for the **Second Councilor District,** including the counties of Bureau, La Salle, Lee, Livingston, Marshall, Putnam, Whiteside and Woodford. The **La Salle County Medical Society** acted as host, with the following physicians participating:

B. M. Kagan, director of pediatric research, Michael Reese Hospital, Antibiotics in Pediatrics, illustrated.

Eugene A. Hamilton, clinical instructor in bone and joint surgery, Stritch School of Medicine of Loyola University, Care of Fractures by the General Practitioner.

Ralph E. Dolkart, assistant professor of medicine, Northwestern University Medical School, ACTH and Cortisone in a Community Hospital, illustrated.

George Vlasis, member of the staff, Chicago Maternity Center, Office Gynecology.

Joseph B. Kirsner, associate professor of medicine, Division of Biological Sciences, University of Chicago School of Medicine, Current Status of Anti-Secretory Drugs, illustrated.

Following the evening dinner, **Harold M. Camp,** Monmouth, Secretary of the Illinois State Medical Society, discussed Voluntary Prepaid Medical Insurance. The evening speaker, **Ormand C. Julian,** clinical assistant professor of surgery, University of Illinois College of Medicine, gave an illustrated presentation on Anticoagulant Therapy.

The presiding officers were **Thomas Ryan,** Ransom, president, La Salle County Medical Society, for the afternoon session; and **Joseph T. O'Neill,** Ottawa, Councilor of the Second District, evening session.

for **EYES** *dissolving in the tears of* **DISTRESS**

ESTIVIN® will soothe the distressing ocular symptoms of hay fever.

ESTIVIN is a solution prepared from rose petals by a special process.

ESTIVIN has an anti-congestive and soothing effect upon irritated ocular and nasal membranes.

ESTIVIN, one drop, applied to each eye causes an almost instantaneous reduction of the congested Meibomian glands with complete relief from all irritation and discomfort.

ESTIVIN® relieves

ITCHING OF THE EYES
EXCESSIVE LACRIMATION
VIOLENT ATTACKS OF SNEEZING
PROFUSE, ACRID NASAL DISCHARGE
REDNESS AND IRRITATION OF THE CONJUNCTIVA

Supplied: Dropper Vials suitable for carrying in pocket or purse.
Professional samples and literature on request.

Schieffelin & Co. since 1794 / *pharmaceutical and research laboratories*
24 Cooper Square, New York 3, N. Y.

PHYSICAL MEDICINE ABSTRACTS

RESULTS OF TREATMENT OF SUBACROMIAL BURSITIS IN THREE HUNDRED FORTY CASES

Guy A. Caldwell, M.D., and Byron M. Unkauf, M.D., New Orleans, La. In ANNALS OF SURGERY, 132:3:432, September 1950

Subacromial or subdeltoid bursitis, long recognized as a clinical entity, is manifested by acute, subacute and chronic symptoms referable to the shoulder and arm and caused by lesions in the muscular tendinous cuff over the head of the humerus and in the subacromial bursa. Patients afflicted with subacromial bursitis tend to recover spontaneously, the time required for recovery varying from a few weeks up to two or three years, depending upon the nature and stage of the lesion. However, in many the symptoms are so severe or so annoying that the majority of patients seek treatment for relief. Among the many therapeutic measures used from time to time are simple and complicated applications of heat, injections of the bursa and adjacent nerves, roentgen therapy and incisions for relief of tension and removal of calcified deposits from the supraspinatus tendon and subacromial bursa. The fact that such varied forms of treatment have been recommended for the same condition strongly suggests that none is specific.

The records of 485 patients with subacromial bursitis treated in the Ochsner Clinic during the seven-year period ending July 1949 were analyzed in an effort to evaluate the various methods of treatment employed. The treatments most used, regardless of the stage of the disease, were procaine injections and roentgenotherapy, each supplemented by physical therapy; some patients were treated with physical therapy alone. Follow-up reports of the results obtained on 340 patients after an average period of three years were analyzed with reference to stage of the disease at the time treatment was given. Analysis of these results indicates that:

(1) Satisfactory relief of pain and restoration of a useful range of motion may be obtained by conservative measures in 70 to 85 per cent of cases.

(2) Roentgen therapy is an effective measure for the relief of pain produced by tension within the supraspinatus tendon in 85 per cent of cases.

(3) Physical therapy is a necessary adjunct to all other measures that may be employed. Physical therapy alone is adequate for many subacute or mild chronic cases.

(4) Recurrent attacks are to be anticipated in 22 per cent of case following acute or subacute symptoms and in 33 per cent of patients with chronic symptoms.

(5) The presence or absence of calcified deposits seems to have no relation to the various

(*Continued on page 62*)

No belladonna backfire...

when you relieve nervous indigestion with . . . . . [redacted]

Clinical [1,2,3] and pharmacological results show that the dual action of BENTYL (musculotropic, neurotropic) provides complete and more comfortable relief than that of all other antispasmodics tested.

DOSAGE: Two capsules three times daily, before or after meals. If necessary, repeat dose at bedtime.

BENTYL . . . . . 10 mg.
for comfortable relief of nervous indigestion

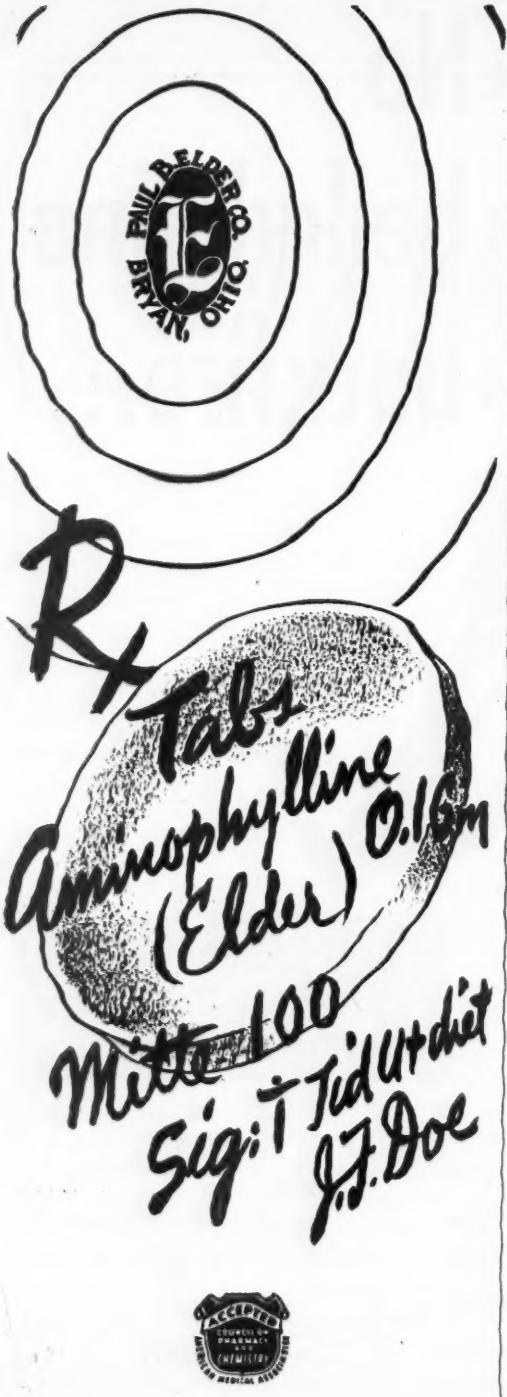
BENTYL . . . . . 10 mg.
with **PHENOBARBITAL** . . . . . 15 mg.
when synergistic sedation is desired

1. Hock, C.W.: J. Med. Assn. Ga. 40: Jan., 1951
2. Hufford, A.R.: J. Mich. St. Med. Soc. 49:1308, 1950
3. Chamberlain, D.T.: Gastroenterology 17: Feb., 1951

Merrell 1828

Trade-mark "Bentyl" Hydrochloride

New York — CINCINNATI — Toronto



PAUL B. ELDER COMPANY
BRYAN, OHIO, U. S. A.
Branches in Detroit, Los Angeles

Physical Medicine (Continued)

stages nor to the incidence of recurrent attacks.

(6) The longer the symptoms have persisted the poorer the outlook for relief by conservative measures. In the chronic group of cases 33 per cent had poor results.

REHABILITATION OF CIVILIAN PARAPLEGICS IN CANADIAN DEPARTMENT OF VETERANS' AFFAIRS HOSPITALS

G. Gingras, M.D., Montreal, Canada. In ARCHIVES OF PHYSICAL MEDICINE, 31:12:772, December 1950.

The admission and treatment of civilian paraplegic patients in Canadian departmental hospitals have been a most interesting and valuable experience. There is no doubt in anyone's mind that, generally speaking, the physical and mental conditions of civilian patients have always been, and still are, far worse than those of the veterans who were injured overseas and were repatriated in difficult circumstances. Financial insecurity, the facts that the civilians' age bracket generally is higher than the veterans' and that there are families to support tend to aggravate social and emotional problems, which often are so acute that many patients have demanded a tremendous amount of patience and work from the staff. A last feature worthy of mention is the fact that public interest and help are not readily aroused toward the civilians, in comparison with the all-out efforts to aid the veterans.

OCCUPATIONAL THERAPY IN A GENERAL AND SURGICAL HOSPITAL

C. O. Molander, M.D., Chicago In ARCHIVES OF PHYSICAL MEDICINE, 31:12:757, December 1950.

In my opinion, there are many reasons that occupational therapy has not progressed in civilian hospitals. Some of them are the following:

(1) Postwar apathy.

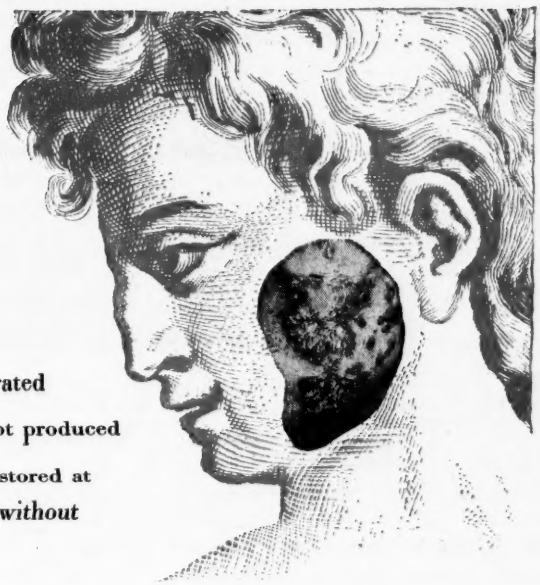
(2) Poor location of occupational therapy facilities. The occupational therapy workshop and the physical therapy unit must be contiguous for efficient service.

(3) Lack of funds.

(4) Lack of research.

(5) Lack of medical supervision. Occupational therapy, like physical therapy, suffers from lack of proper medical supervision, because

(Continued on page 64)



Topical therapy . . .
effective and safe
for continued use

- because Terramycin is well tolerated
- because bacterial resistance is not produced
- because the medication may be stored at room temperature for 12 months without significant loss of potency

CRYSTALLINE

Terramycin

HYDROCHLORIDE

for topical use only **OINTMENT**

An ointment of Crystalline Terramycin Hydrochloride in a petrolatum base. Each Gm. of ointment provides 30 mg. of Terramycin.

indicated for:
- superficial pyogenic infections
  - pyoderma
- pustular dermatitis
  - minor wound infections
- infections associated with minor burns
  - prophylaxis

particularly valuable in mixed infections

In severe local infections which may become systemic, the ointment should be used as an adjunct to oral therapy with Crystalline Terramycin Hydrochloride Capsules.

supplied: Tubes containing 1 oz. (28.4 Gm.)

Antibiotic Division **Pfizer** CHAS. PFIZER & CO., INC. *Brooklyn 6, New York*

Physical Medicine (Continued)

there are not enough physiatrists to go around.

(6) Lack of qualified therapists. We must face the future with a more complete understanding of our problems — a realization that we are living at a period when many accepted beliefs and professional traditions are being discarded on the basis of experience and experimental study. Occupational therapists and physical therapists must realize that they are an integral part of physical medicine, each complementing the other.

In summary, the principles of coordination should be embodied in actual practice. Recent graduates of occupational therapy schools should serve a brief internship in physical therapy units, and physical therapists should likewise serve in occupational therapy departments. Thus, actual experience will be gained, and a more thorough understanding of each other's problems can be attained.

MULTIPLE SCLEROSIS: A CORRELATION OF ITS INCIDENCE WITH DIETARY FAT

Roy Laver Swank, M.D., Montreal, Canada. In THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES, *220:4:421*, October 1950.

In a discussion of factors which influence the incidence and character of the disease multiple sclerosis, the variations in its geographic incidence deserve special consideration. The prevailing concept that the disease is more common in northern and colder than in southern and warmer climates is based on incomplete and inadequate evidence, but the absence of a known cause of multiple sclerosis forces us to examine this evidence more closely.

In an epidemiologic study of multiple sclerosis in Europe, changes in the nutrition before, during, and since the war have been correlated with the yearly incidence of the disease during this same period. These data, plus other collected observations, suggest that possibly the incidence

(*Continued on page 66*)

SEARS ROEBUCK AND CO.

℞ FOR YOUR DEAFENED PATIENTS . . . .

ACCEPTED COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION AMERICAN MEDICAL ASSOCIATION

Silvertone
HEARING CENTER
at Sears major stores

PLEASANT, CONFIDENTIAL DEMONSTRATION . . . ABSOLUTELY FREE!

- Silvertone Hearing Aids at $74.50, 99.50 and 124.50 (also sold on Sears Easy Payment Plan)
- Complete line of accessories and batteries for nearly all makes. Top quality, substantial savings!
- Specially trained hearing consultants . . . to test and talk over any hearing problems!

Dept. 604
Sears, Roebuck and Co.
Chicago 7, Ill.

Please send me further information about Silvertone Hearing Aids and services.

DR._____

ADDRESS_____

CITY_____STATE_____

MAIL COUPON FOR FURTHER DETAILS

"Satisfaction guaranteed or your money back" SEARS

Oily lotion helps prevent bed sores

The soothing, emollient character of Dermassage has made it a confirmed ally in measures for the prevention of bed sores and in massage. Its lanolin and olive oil content lubricates skin surfaces and reduces the likelihood of skin cracks and irritation resulting from dryness. A pleasant cool sensation is produced by menthol, without resort to rapid evaporation and loss of skin moisture.

Hexachlorophene gives added protection

With the addition of hexachlorophene, effective germicidal and deodorant agent of low toxicity, Dermassage has acquired greater protective value. It makes possible a lowered bacterial count on skin areas to which it is routinely applied, thus minimizing the risk of initial infection should skin breaks occur in spite of precautions.

An efficient means of protecting the patient against skin discomfort or damage while confined to bed or wheel chair in hospital or home. Used and approved in thousands of hospitals, coast-to-coast, and on the recommendation of doctors, nurses and hospitals to patients returning home.

TEAR HERE and pin to your LETTERHEAD
for a liberal Trial Sample of EDISONITE SURGICAL CLEANSER

Instruments come spotlessly clean and film-free after a 10- to 20-minute immersion in Edisonite's probing "chemical fingers" solution. Harmless to hands as to metal, glass and rubber.

EDISON CHEMICAL COMPANY
30 W. Washington St., Chicago 2

EDISON'S dermassage

T. M. Reg.

You are Invited to test DERMASSAGE first hand

– An Established Aid to Good Nursing Now with New Protective Value

EDISON CHEMICAL CO.
30 W. Washington, Chicago 2

IMJ 5-51

Please send me, WITHOUT OBLIGATION, your Professional Sample of Dermassage.

Name.....

Address.....

of the disease in entire populations may be related directly to the dietary fat. It seems clear from the observations presented in this paper, as well as from unreported clinical studies, that a high fat diet is not the cause of multiple sclerosis even though it may contribute to a high incidence of the disease by accelerating it in susceptible individuals.

PLANNING A SMALL RADIOISOTOPE PROGRAM

George W. Reid, Associate Professor of Sanitary Engineering, Georgia Institute of Technology, Atlanta, Ga., and Oscar M. Bizzell, Radiochemist, Isotopes Division, Atomic Energy Commission, Oak Ridge, Tenn. In INDUSTRIAL MEDICINE AND SURGERY, 19:12:25, December 1950.

Many prospective radioisotope users are unfamiliar with the problems that must be faced when setting up an isotope program. Two of the major difficulties involve an unfamiliarity with nomenclature and with the prerequisites for the safe handling of radioactivity. Although isotopes are valuable tools in research, one should not attempt to use them until thorough training has been acquired.

Adequate preliminary training is essential if one is to avoid pitfalls encountered in the design of radioactive laboratories, purchasing of equipment, drawing of false conclusions from experiments, etc. All aspects of the planned program should be investigated thoroughly before any definite action is taken. Budgetary considerations can be met by careful program planning, careful design of the laboratory, and judicious selection of equipment. Sources of information and assistance are available by means of which starting a small isotopes program can be more readily accomplished.

HOW OCCUPATIONAL THERAPY HELPS IN PSYCHIATRY

Winfred Overholser, M.D., Sc.D., and Virginia D. Coffin, B.S., O.T.R., Washington, D. C. In ARCHIVES OF PHYSICAL MEDICINE, 31:12:749, December 1950.

Occupational therapy can play an important role in the recovery of the mentally disturbed

(*Continued on page* 68)

More than just estrogen therapy...

...THIS COMBINATION HELPS RESTORE ENERGY, FITNESS AND A SENSE OF WELL-BEING

SEStramin (PATCH)

—goes beyond the provision of estrogen sufficiency—it treats also the patient's nutritional state by providing a balanced estrogen-vitamin formula.

Sestramin is indicated in natural and surgical menopause, functional amenorrhea and dysmenorrhea, suppression of lactation.

ORAL THERAPY—in tablet form, Sestramin is preferred by many patients, especially those who fear injections.

NO UNTOWARD SIDE-EFFECTS—Sestramin is better tolerated than synthetics.

Supplied: bottles of 20, 100 and 500 tablets.

TWO STRENGTHS →

SEStramin 10M—Conjugated estrogens equivalent to oral activity of Sodium Estrone Sulfate 1.25 mg.

SEStramin 5M—Conjugated estrogens equivalent to oral activity of Sodium Estrone Sulfate 0.625 mg.

Formulae: Brewers' yeast, 100 mg.; Thiamine hydrochloride, 3 mg.; Riboflavin, 2 mg.; Niacinamide, 10 mg.; Pyridoxine hydrochloride, 1 mg.; Calcium pantothenate, 5 mg.; Ascorbic acid (vitamin C), 25 mg.; Vitamin D, 500 I.U.

THE E. L. PATCH COMPANY • Stoneham, Mass.

in hospitals, and with leading hematologists . . .

Feosol Tablets *are the standard iron therapy*

In simple iron-deficiency anemias, Feosol Tablets are standard because they are not only easily tolerated but also remarkably effective.

Feosol Tablets' special coating assures timed disintegration in the acid medium of the stomach and upper duodenum where iron is best absorbed. That is one reason why they are standard in hospitals and with leading hematologists.

Each Feosol Tablet contains 3 grains exsiccated ferrous sulfate, equivalent to approximately 5 grains crystalline ferrous sulfate.

Smith, Kline & French Laboratories, Philadelphia
'Feosol' T.M. Reg. U.S. Pat. Off.

Physical Medicine (Continued)

if the therapist has understanding and compassion for the mentally disturbed, if she is well adjusted and understands her own needs and the ways in which she fulfils them and if she realizes that meaningful interpersonal relationships are the basis and the goal of her treatment.

FROSTBITE

Colonel Wayne G. Brandstadt, M.C., U. S. Army. In THE MILITARY SURGEON, 107:5:386, November 1950.

For the purpose of urgent first aid in hypothermia the patient should be placed in warm surroundings, given energetic and prolonged massage, given calcium chloride intravenously, and given hot drinks by mouth. In massaging, excessive traumatization of the skin must be avoided. After wiping the skin with alcohol swabs the patient should be wrapped in a sterile towel, pulling strongly on the edges so as to bring it tightly into contact with his body. This is followed by energetic massage over the towel with the open palm. This method has great advantages even over massage with the hand in a sterile glove, since it is milder, easier on the skin, develops a great amount of heat and gives the maximum protection against infection. Massage should not be given when several hours have elapsed after the occurrence of frostbite, because by that time inflammatory symptoms will have appeared and the injured tissues are then in need of absolute rest, plus warming.

POSTURE—ITS ROLE IN OBSTETRICS AND GYNECOLOGY

Leonard B. Greentree, M.D., Columbus, Ohio. In THE OHIO STATE MEDICAL JOURNAL, 46:11:1066, November 1950.

So far, very little in medical literature has appeared concerning the important role of good posture in obstetrics and in gynecology. Obstetricians have begun to be aware of this importance, and so have gynecologists; but so far the most common procedure has been to turn over to orthopedic surgeons the few patients in most obvious need of help, and do little for the others. The writer submits that more stress on posture

(Continued on page 70)

New LEVERAGE FOR CONTROL of Certain Heart and Respiratory Disorders

Dorsaphyllin now affords the therapeutic action of theophylline, *buffered by sodium glycinate to reduce gastric irritation*. With gastric acidity thus neutralized and precipitation of theophylline in the stomach prevented, the buffered drug is well tolerated in larger doses. In addition, having neither enteric nor sugar coating, Dorsaphyllin tablets disintegrate rapidly in the stomach and absorption begins immediately. By permitting the physician a freer hand in determining dosage, and by removing the obstacle to prompt therapeutic response, Dorsaphyllin brand of theophylline-sodium glycinate is providing new leverage in the management of such disorders as congestive heart failure, Cheyne-Stokes respiration, bronchial asthma, and status asthmaticus.

Tablets • Elixir • Suppositories
For children, palatable Elixir Dorsaphyllin is acceptable and well tolerated. For the hypersensitive, Dorsaphyllin Suppositories are available.

From The Literature
- Bubert and Cook, Bulletin of School of Medicine, Univ. of Maryland, Vol. 32, pp. 175-190, 1948.
- Paul and Montgomery, J. Iowa State Med. Soc., June, 1948.
- Krantz, Holbert, Iwamoto and Carr, J.A.Ph.A., Vol. 36, pp. 248-250, 1947.
- New and Non-official Remedies, 1950, p. 285.

ACCEPTED COUNCIL ON PHARMACY AND CHEMISTRY MEDICAL ASSOCIATION

dorsaphyllin
BRAND OF THEOPHYLLINE-SODIUM GLYCINATE

THE SMITH-DORSEY COMPANY
LINCOLN, NEBRASKA
LOS ANGELES • DALLAS • MEMPHIS

LUBRICOID ACTION

without oil

IN CONSTIPATION MANAGEMENT

TURICUM

TRADE MARK

HYDROPHILIC LUBRICOID

—presents methylcellulose as a gel, to which magnesium hydroxide is added in less than laxative dosage to assure continued hydration of the gel throughout the intestinal tract.

In maintaining an osmotic equilibrium, the magnesium ion attracts and retains adequate water to keep the methylcellulose in the form of a soft gel—providing a distinctive efficient *lubricoid* action which promotes gentle elimination.

Each tablespoonful of Turicum contains:

METHYLCELLULOSE	0.3 Gm.
MAGNESIUM HYDROXIDE	0.6 Gm.

The Turicum formula assures:

- *lubricous bulk to encourage normal evacuation*
- *good distribution throughout the bowel*
- *no bloating*
- *no danger of impaction*
- *no interference with utilization of oil-soluble vitamins*
- *no danger of lipid pneumonia*
- *no leakage*

Turicum is available in one pint bottles.

Whittier
LABORATORIES
DIVISION NUTRITION RESEARCH LABORATORIES, INC.,
CHICAGO 11, ILLINOIS

Physical Medicine (Continued)

by the obstetrician-gynecologist for practically *all* patients will result in better health during and after pregnancy, do much to improve the individual patient's figure (an important consideration to many women in childbearing), and be of beneficial effect for many gynecological patients part of whose difficulties, at least, may be faulty posture.

Applying the principles of normal body mechanics can be a useful adjunct to other measures employed in obstetrics and gynecology. Good posture often notably improves the health and figure of the patient. This paper has attempted to show:

(1) The standards of normal posture.

(2) Methods of making postural examinations.

(3) The importance of an orthopedic consultation when unusual postural defects are present.

(4) Procedures whereby good posture is maintained and faulty posture is improved.

THE TREATMENT OF CAUSALGIA AND ALLIED DISORDERS IN EMPLOYED PERSONS

Benjamin B. Whitcomb, M.D., Hartford, Conn. In INDUSTRIAL MEDICINE AND SURGERY, 19:11:519, November 1950.

Whereas the treatment of true causalgia is gratifying, the treatment of the allied disorders frequently is not. The former is an uncommon disorder and is seen principally in war casualties, while the latter are more common and are more frequently encountered as results of industrial accidents. They are more likely to occur in those persons who have hyperactive sympathetic nervous systems subject to psychological complications.

Treatment usually is associated one way or another with the interruption of the sympathetic reflex arc and should be carried out by beginning with the simplest procedures in the following order:

(1) Physical therapy with reassurance from an understanding physician.

(2) Drugs—sympatholytic agents, mild sedatives, avoiding analgesics and narcotics.

(3) Procaine injection locally.

(4) Sympathetic ganglion block.

(5) Sympathetic surgery should be reserved

(*Continued on page 72*)

Dilaudid hydrochloride

(dihydromorphinone hydrochloride)

COUNCIL ACCEPTED

Powerful opiate analgesic - dose, 1/32 grain to 1/20 grain.

Potent cough sedative - dose, 1/128 grain to 1/64 grain.

Readily soluble, quick acting.

Side effects, such as nausea and constipation, seem less likely to occur.

An opiate, has addictive properties.

Dependable for relief of pain and cough, not administered for hypnosis.

● Dilaudid is subject to Federal narcotic regulations. Dilaudid, Trade Mark Bilhuber.

Bilhuber-Knoll Corp. Orange, N. J.

*Intermediate Acting**

GLOBIN INSULIN

'B.W.& CO.'

***Clinical Evidence:—**

"...it was found that the characteristic activity of globin insulin and 2:1 mixture (of protamine zinc and regular) insulin is essentially the same."[1]

"Not often do either globin insulin or a 2:1 mixture require supplementary use of regular insulin. Fully 80% of all severe diabetics can be balanced satisfactorily with one of them."[2]

1. *Reeb, B. B., Rohr, J. R., and Colwell, A. R.: Proc. House Staff Dept. Med., Wesley Memorial Hospital, Chicago, Ill. Feb. 6, 1948.*

2. *Rohr, J. H., and Colwell, A. R., Proc. Amer. Diabetes Assn. 8:37, 1948.*

COMPLETE CLINICAL INFORMATION WILL BE SENT ON REQUEST

'Wellcome' brand Globin Insulin with Zinc, 'B. W. & Co.'®
is supplied in vials of 10 cc., U-40 and U-80

BURROUGHS WELLCOME & CO., (U.S.A.) INC., TUCKAHOE 7, NEW YORK

Prevent
INFECTION
with
MERCUROCHROME
(H. W. & D. Brand of merbromin,
dibrom-oxymercuri-fluorescein-sodium)
Extensive use of the Surgical Solution of Mercurochrome has demonstrated its value in preoperative skin disinfection. Among the many advantages of this solution are:
Solvents which permit the antiseptic to reach bacteria protected by fatty secretions or epithelial debris.
Clear definition of treated areas. Rapid drying.
Ease and economy of preparing stock solutions.
Solutions keep indefinitely.
The Surgical Solution may be prepared in the hospital or purchased ready to use.
Mercurochrome is also supplied in Aqueous Solution, Powder and Tablets.
HYNSON, WESTCOTT & DUNNING, INC.
Baltimore 1, Maryland

Physical Medicine (Continued)

for the most refractory cases that have a favorable but temporary response to sympathetic ganglion block.

The disability should not be long, whatever the form of treatment used, and should not result in any degree of permanent disability nor be associated with financial gain. The latter would seem only further to cloud and prolong the clinical picture.

BIOCHEMICAL ALTERATIONS IN ACUTE HUMAN POLIOMYELITIS: ELECTROLYTE PATTERNS AND TRENDS

Albert G. Bower, M.D., Jack Sheldon Chudnoff, M.D., and Albert L. Chaney, Ph.D., Los Angeles. In CALIFORNIA MEDICINE, 73:5:406, November 1950.

Pronounced alterations occur in the biochemical findings in acute poliomyelitis. These are derived from three major mechanisms: (a) inefficient pulmonary gaseous exchange, resulting in respiratory acidosis; (b) profound changes in nitrogen metabolism, resulting in decreased serum albumin, tissue destruction, and increased urinary nitrogen; (c) losses of electrolytes through extrarenal channels such as lung and tracheal secretions, sweating, and gastrointestinal disturbances.

The extent of these alterations may be defined by appropriate serum and urinary biochemical determinations. These determinations are valuable both from a therapeutic and a prognostic standpoint. They also contribute to further understanding of physiologic and pathologic conditions in acute poliomyelitis.

PSYCHOLOGICAL CONSIDERATIONS IN THE REHABILITATION OF THE CARDIAC PATIENT IN INDUSTRY

Edward Stainbrook, Ph.D., M.D., New Haven, Conn. In INDUSTRIAL MEDICINE AND SURGERY, 19:11:528, November 1950.

In our ordinary thinking, the rehabilitation of the diseased person is usually thought of as a restoration of the capacity for work. An early nineteenth century use of the word "rehabilitation", however, suggests to us another and, perhaps, equally important meaning. This is an interpretation of rehabilitation as the reestablishment of character or reputation, or, as we might paraphrase it today, the restoration of security

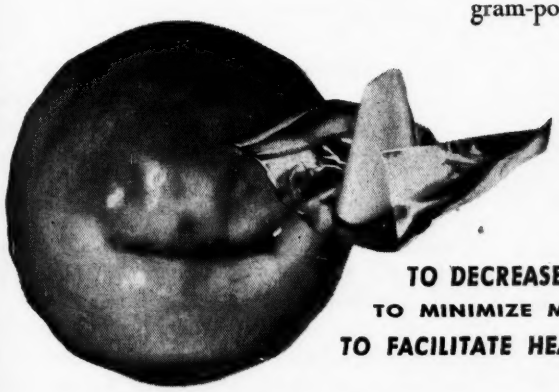
(*Continued on page 74*)

IN VAGINAL AND CERVICAL SURGERY

Furacin Vaginal Suppositories are being used preoperatively to eradicate accessible bacterial infections of the cervix and vagina.

Postoperatively, following hysterectomy or conization of the cervix, their use facilitates primary healing by controlling the surface infection. Likewise, they can decrease greatly the slough, drainage and malodor.

Furacin is stable at body temperature —remains effective in the presence of exudates—is bactericidal to a wide variety of gram-negative and gram-positive pathogens.



Furacin® Vaginal Suppositories

TO DECREASE DRAINAGE
TO MINIMIZE MALODOR
TO FACILITATE HEALING

Furacin Vaginal Suppositories contain Furacin 0.2%, brand of nitrofurazone N.N.R. in a base which is self-emulsifying in vaginal fluids and which clings tenaciously to the mucosa. Each suppository is hermetically sealed in foil which is leak-proof even in hot weather. They are stable and simple to use.

These suppositories are indicated for bacterial cervicitis and vaginitis, pre- and postoperatively in cervical and vaginal surgery.

Literature on request

EATON LABORATORIES Inc.
NORWICH, NEW YORK

The NITROFURANS
A unique class of antimicrobials

New Form of Levo-Alkaloids of Belladonna For Selective Spasmolytic Action

The practical value of an antispasmodic depends upon the degree of a desirable spasmolytic effect, convenience of administration and patient acceptance.

Degree of spasmolytic effect of belladonna alkaloids rests upon the intensity of parasympathetic inhibition. Pure levorotatory belladonna alkaloids (Bellafoline) are more potent and selective than belladonna alkaloid mixtures in producing this spasmolytic effect, at the same time minimizing the undesirable cerebrospinal effects.

Studies by *Kramer and Ingelfinger,* (M. Clin. North Amer., Boston No.: 1227, (1948) demonstrate the highly efficient action of Bellafoline. By balloon-kymograph studies on the human intestine they found that most commonly used antispasmodics are less effective than atropine (standard dose: 1/100 gr.). Bellafoline was the outstanding exception. It surpassed atropine in both degree and duration of action.

The antispasmodic effect of Bellafoline is augmented by a small dose of phenobarbital thereby reducing underlying excitability and tension.

Such an association of Bellafoline and phenobarbital is *now available in the form of Elixir Belladenal.*

Thus **Elixir Belladenal** fulfills the requirements for practicality by reason of: high efficacy, patient acceptance, convenience of dosage regulation. It is especially serviceable in pediatrics and in those adults where the use of tablets is impractical. The teaspoonful dose contains Bellafoline (levorotatory alkaloids of belladonna leaf) 0.0625 mg. and Phenobarbital 12.5 mg. The indications are those of **Belladenal Tablets**, e.g. Peptic ulcer, Pseudoulcer, Spastic colon, other hypermotility-hypersecretion states of the gastrointestinal-biliary tracts and genito-urinary spasm. Professional Samples and Literature available upon request.

Sandoz Pharmaceuticals

DIVISION OF SANDOZ CHEMICAL WORKS, INC.
68 CHARLTON STREET, NEW YORK 14, NEW YORK

Physical Medicine (Continued)

and selfesteem. This latter goal is a particular task of the rehabilitory management of cardiac disease.

A NEW "BUILD-IT-YOURSELF" CONDUCTIVE SHOE TESTER

Curtiss B. Hickcox, M.D., and Burton B. Lovell Jr., Sc.B. In HOSPITALS, 24:11:57, November 1950.

To meet today's safety standards, an operating room must have, among other things, conductive flooring. But conductive flooring is of no value unless all equipment and all persons who work in the operating room are properly grounded to this floor. Conductive shoes are recognized as an important element in this grounding chain.

Since, at present, combustible materials cannot be withdrawn from the operating room, prevention of ignition becomes the prime concern. The most difficult to control among possible source of ignition is the chance spark of static electricity.

In the most recent revision of the "Recommended Safe Practices for Hospital Operating Rooms," shoes which are suitable for operating room personnel are described.

The recommendations mentioned above were used as a guide by our hospital engineers in designing our simple, inexpensive, but dependable shoe conductivity tester. Already, it has performed satisfactorily in our operating and delivery rooms. The shoe tester described cost us about $50.

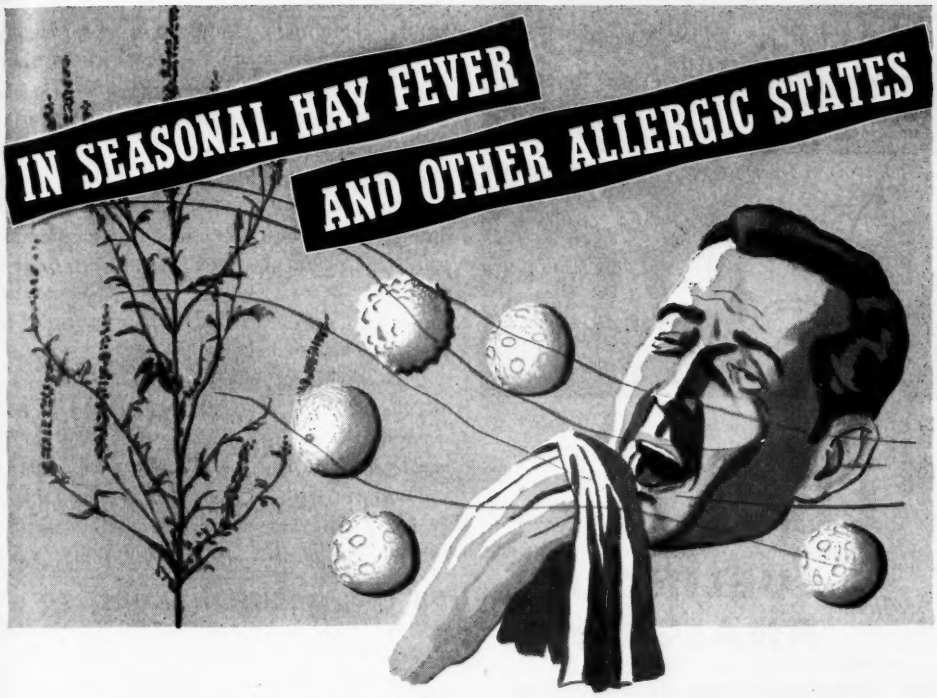
CHRONIC, CONVALESCENT AND REHABILITATION UNIT IN PEORIA

In HOSPITAL PROGRESS, 31:11:324, November 1950.

When, on August 15, the Forest Park Home—St. Francis Hospital Division was dedicated, the city of Peoria saw the near-completion of a type of health facility which few large cities can match. Among Catholic hospitals, St. Francis is the first to acquire a unit intended for chronic, convalescent and rehabilitation cases. Rehabilitation service on a limited scale is not unknown in Catholic institutions, but St. Francis Hospital is the first to tackle the problem comprehensively.

Clearly, the unit as originally planned was

(*Continued on page* 78)



ANTIHISTAMINE ACTION

with minimum side effects

HISDRIN makes possible full antihistamine effect for prolonged periods, but reduces such complicating side actions as drowsiness or lethargy. Its desirable clinical behavior is due to a rationale combination of a dependable antihistamine agent and a sympathomimetic drug which exerts a stimulating action on the central nervous system.

In patients who develop drowsiness upon taking an antihistamine agent, the mild cerebral stimulation afforded by Hisdrin aids in overcoming this tendency and allows full mental and physical activity.

Hisdrin is indicated in the symptomatic control of all allergic states in which antihistamines are of value: seasonal hay fever, allergic dermatitis, drug reactions, and many types of pruritus.

FORMULA

Each Hisdrin tablet contains:
Semikon hydrochloride
(Methapyrilene hydrochloride) 50 mg.
Semoxydrine hydrochloride
(d-Desoxyephedrine
hydrochloride)..... 2.5 mg.
It is available on prescription
through all pharmacies.

SEMCO

THE S. E. MASSENGILL COMPANY
Bristol, Tenn.-Va.
NEW YORK • SAN FRANCISCO • KANSAS CITY

HISDRIN

Theryl

SUBLINGUAL ANALGESIC

★ **Absorbed from oral mucosa**

★ **Directly into blood stream**

Enthusiastic clinical reports show: (1) Faster, (2) Longer relief from pain with new, unique Theryl Sublingual Analgesic.[1] [2]

Taken Without Water
May Often Supplant Narcotics[2]

One or two tablets are placed in the mouth without water. In less than one minute, the analgesic agent is present in the blood. Here are a few typical reports:

INDICATION OR SURGERY	TIME REQUIRED FOR ANALGESIA
Post-Appendectomy	3 minutes
Post-Hemorrhoidectomy	3 minutes
Post-Tonsillectomy	2 minutes
Simple Headache	½ - 3 minutes
Menstrual Pain	5 minutes

Many other dramatic cases reported.

1. Hoffman, Murray M., Ill. Dent. Jl., 19:439-445 (Oct., 1950)

2. McNealy, Raymond W., Ill. Med. Jl., 97:150 (Mar., 1950)

FREE Send for sample and Literature.

CHURCH CHEMICAL CO.
75-J E. Wacker Drive, Chicago 1, Ill.

Physical Medicine (Continued)

amply warranted; the addition of a rehabilitation department made the new structure an all the more valuable addition to the Peoria health facilities. Peoria was an ideal location for a rehabilitation center. The city is an industrial one, and is the headquarters of some of the largest manufacturing companies in the country, among others the Caterpillar Tractor Company; industrial accidents, with their toll in disability, inevitably occur. Support for the rehabilitation center came promptly and wholeheartedly, from plant physicians as well as others.

The rehabilitation center operated by the Institute of Physical Medicine and Rehabilitation occupies the west wing of the ground floor. When completed, the center will be very well equipped, including a swimming pool of considerable size. It has a separate entrance, contributing to the convenience of caring for ambulatory patients.

THE CARE OF HAND INJURIES

In THE JOURNAL OF THE KANSAS MEDICAL SOCIETY, 51:10:474, October 1950.

The first-aid care of wounds of the hand is directed fundamentally at protection. It should provide protection from infection, from added injury, and from future disability and deformity. The best first-aid management consists in the application of a sterile protective dressing, a firm compression bandage and immobilization by splinting in the position of function. No attempt should be made to examine, cleanse, or treat the wound until operating room facilities are available.

Following healing of skin and soft tissues and firm union of bony structures, as much function as possible should be restored by directed active use of the hand, therapeutic exercises and occupational therapy.

Reconstructive surgery often is required after such injuries to permit maximum restoration of function. Such reconstruction will be less extensive and less formidable if the early management of the injury is judiciously and carefully carried out.

A sanatorium must not be regarded as just a place where the patient has a bed and a tray and a nurse and a physician. A sanatorium, if it serves its purpose, is in the first place an atmosphere in which each patient is leading the kind of life he must lead for cure of tuberculosis. Calif. Med., Edward W. Hayes, M.D., December, 1950.

"...the only drug we have seen that allays anxiety without clouding consciousness"

J.A.M.A. *140*:672 (June 25) 1949

Tolserol *(Squibb Mephenesin)*

- **to alleviate pronounced anxiety and tension**
- **as an adjunct in the treatment of chronic alcoholics**

DOSAGE

In anxiety tension states:

As little as 0.5 Gm., given orally every few hours, has produced a good response. However, for optimum effect, 0.75 Gm. or more is given several times a day.

As an adjunct in the treatment of chronic alcoholics:

As much as 3 Gm. orally every four hours has been found useful in the acute stage. This dosage is reduced when the patient becomes more manageable. (If Tolserol is given too soon after the patient drank alcohol, the toxic effect of the alcohol may be potentiated. For this reason, Tolserol should not be administered until six hours have elapsed since the patient drank alcohol.)

Tablets, 0.5 Gm., 0.25 Gm.; *Capsules*, 0.25 Gm.; *Elixir*, 0.1 Gm. per cc.; *Solution*, 2% (intravenous).

Tolserol *(Squibb Mephenesin)*

SQUIBB 745 FIFTH AVENUE, NEW YORK 22, NEW YORK
MANUFACTURING CHEMISTS TO THE MEDICAL PROFESSION SINCE 1858

"TOLSEROL" IS A REGISTERED TRADEMARK OF E. R. SQUIBB & SONS

BOOK REVIEWS

ATLAS OF HISTOLOGIC DIAGNOSIS IN SURGICAL PATHOLOGY. By Karl T. Neubuerger, M.D., Professor of Pathology, University of Colorado School of Medicine, Denver, Colorado. With a section on Exfoliative Cytology by Walter T. Wikle, B.S., M.S., M.D. Assistant Professor of Pathology, University of Colorado School of Medicine, Denver, Colorado. Photography by Glenn E. Mills, B.A., M.A. Department of Visual Education, University of Colorado School of Medicine, Denver, Colorado. Baltimore. The Williams and Wilkins Company. 1951. $11.00.

The purpose of this atlas is to show histologically the essentials of as many surgical pathological lesions as possible in the allotted space. There are 880 photomicrographs, each accompanied by a short discussion of the disease illustrated. Less common conditions as well as routine surgical material are included.

The principle behind the book is excellent; there is much need for a ready reference book of this kind. The inherent difficulty lies in showing enough about the pathology of a given lesion in one or two photomicrographs, and that is the chief criticism of this book, that in some cases the essential lesion is simply not shown well enough. This can be overcome by better selection of fields. There is a good deal of variation in the quality of the photomicrographs. Most are good, but in others the lighting could be improved on.

In general the book is a good one, and could be used by anyone taking a short course in pathology. It is not intended to, and will not, replace microscopic study by the student.

J. C. S.

SKULL FRACTURES AND BRAIN INJURIES. Harry E. Mock, M.D. Consulting Surgeon, St. Lukes Hospital, Chicago. Associate Professor Emeritus of Surgery, Northwestern University Medical School. The Williams & Wilkins Co. Baltimore, 1950.

This text book by Mock should be in the hands of every practicing physician and surgeon everywhere. The reviewer had the benefit of seeing some of the cases of the Author in the past thirty years at the Cook County Hospital. The Author was one of the first general surgeons at the Cook County Hospital who instituted a definitive type of routine therapy for skull fractures and brain injuries. He outlined in clear language the indications and symptoms for a specific therapy. This alone has been a responsible factor in reducing the morbidity and mortality of skull fractures and brain injuries. Some of the author's indications for spinal punctures are debatable albeit these are not factors in causing any morbidity or mortality. This excellent text book is extremely important because of its simplicity and orderly arrangement. The majority of skull fractures and brain injuries will be managed by the general practitioner earlier than the neurological surgeon and because of that these physicians and surgeons should study and learn the indications for therapy in every case. These studies are of great importance since 45% of deaths occur in the first 24 hours. Any unnecessary treatment may be a factor that causes or helps to cause the death.

Mock discusses in detail the following forms of treatment: rest; spinal drainage; operative form; general principles of treatment. There is a chapter or more on skull fractures and brain injuries in children with extradural hematoma, subdural hemorrhage, associated injuries, post traumatic syndromes, medico legal implications, is a fairly large bibliography making this book a very desired one.

T.T.S.